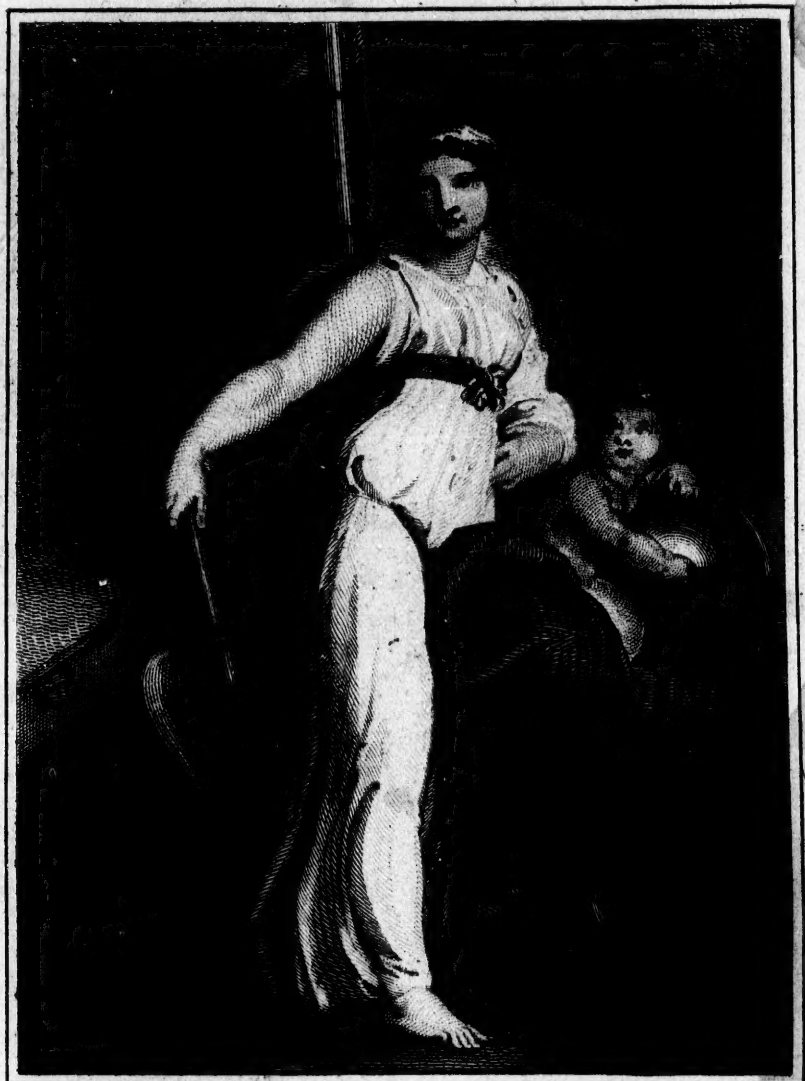




Stothard Delint.

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THE VOYAGE
OF
LA PÉROUSE
ROUND THE WORLD,

IN THE YEARS 1785, 1786, 1787, AND 1788,
WITH THE NAUTICAL TABLES.

Arranged by M. L. A. MILET-MUREAU,
Inspector of Fortifications and Member of several literary Societies at Paris.

TO WHICH IS PREFIXED,
NARRATIVE OF AN INTERESTING
VOYAGE FROM MANILLA TO ST. BLAISE.

AND ANNEXED,
TRAVELS OVER THE CONTINENT,
With the Dispatches of La Pérouse in 1787 and 1788,
BY M. DE LESSEPS.

TRANSLATED FROM THE FRENCH.

Illustrated with Fifty-one Plates.

IN TWO VOLUMES.

VOL. II.

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THE VOYAGE

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W. J. P. E. B. O. U. S. F.

ROUND THE WORLD

THE UNIVERSITY OF CHICAGO

CLASSIFICATION: UNCLASSIFIED

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VOYAGE

ROUND THE WORLD,

IN THE YEARS

1785, 1786, 1787, AND 1788.

CHAP. XVI.

DEPARTURE FROM CAVITA—SAND BANK IN THE MIDDLE OF THE CHANNEL OF FORMOSA—ITS LATITUDE AND LONGITUDE—WE ANCHOR TWO LEAGUES OFF OLD FORT ZEELAND—WE GET UNDER SAIL NEXT DAY—DESCRIPTION OF THE PESCADORES OR PONG-HOU ISLANDS—WE MAKE THE ISLAND OF BOTOL TOBACO-XIMA—WE COAST ALONG THE ISLAND OF KUMI WHICH FORMS PART OF THE KINGDOM OF LIQUEO—ENTER THE SEA OF JAPAN AND SAIL ALONG THE COAST OF CHINA—WE STEER FOR THE ISLAND OF QUELPAERT—COAST COREA, MAKING DAILY ASTRONOMICAL OBSERVATIONS—DESCRIPTION OF THE ISLAND OF QUELPAERT, COREA, &c. DISCOVERY OF THE ISLAND OF DAGELET—ITS LONGITUDE AND LATITUDE.

ON the 9th of April, according to the European Calendar, but the 10th by that of the Manillas, we set sail with a good breeze at N. E. which flattered us with the hopes of doubling, in the course of the day, all the islands that form the various straits of the bay of Manilla. Before we got under way, M. de Langle and myself received a visit from M. de Bermudas, who assured us that the north-east monsoon would not change in less than a month, and that

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it was still later on the coast of Formosa, the continent of China being in a manner the source of the northerly winds, which prevail more than nine months in the year, on the coast of that empire. But our impatience to depart did not admit of listening to the counsels of experience. We flattered ourselves with the hope of a fortunate exception: and that each year might give different epochas of change to its monsoons. Thus we took our leave, and some trifling variations of the wind soon permitted us to get to the northward of the island of Luconia.

We had scarcely doubled Cape Bujador when the wind became obstinately fixed in the north-east, and proved the truth of M. Bermudas's advice. I flattered myself, though with little ground for hope, that we should find under the lee of Formosa the same variations as under the island of Luconia. I did not forget that the proximity of the coast of China rendered this opinion less probable. But in all events we had no alternative, but to wait the change of the monsoon. For the heavy sailing of our ships, which were sheathed with wood and filled, left us no hopes of making any way to the northward with contrary winds. On the 21st of April we made the island of Formosa; in the channel which separates it from Luconia we experienced very violent currents, which appeared to be occasioned by a regular tide, for our dead reckoning never differed from the result of our observations, either in latitude or longitude. On the 22d April, I discovered the island of Lamay, which lies off the S. E. point of Formosa, at a distance of about three leagues, bearing E. by S. the sea was very high, and the aspect of the coast convinced me I should make more way northward, if I could approach that of China. With the N. N. E. winds, I might steer N. W. and thus gain a higher latitude. But in the middle of the channel I remarked that the sea was extremely changed; we were then in $22^{\circ} 57'$ N. lat. and

and to the westward of the meridian of Cavita, or in $116^{\circ} 41'$ E. longitude, and in 27 fathoms water, over a sandy bottom: and four minutes afterwards in only 19 fathoms. So rapid a change led me to conclude these were not the soundings of the coast of China, from which we were at a distance of more than 30 leagues, but of a bank not laid down in the charts. I kept the lead going, and soon found only twelve fathoms water; I then tacked towards Formosa, and the bottom continued equally irregular. I was now of opinion that we ought to anchor, and therefore made a signal to that effect to the Astrolabe.

The night was serene, and at the return of day we perceived no breakers around; I got under sail, and again shaped my course N. W. by W. towards the continent of China, but at nine o'clock in the morning, being in 21 fathoms water, and one minute after in 11 fathoms with a rocky bottom, I was of opinion that we ought not to continue any longer so dangerous a pursuit, since our boats did not sail well enough to keep a head of our ships, and apprise us of the soundings. I determined therefore to run back on the same point of the compass, and accordingly steered S. E. by E. We sailed six leagues on this course, over a bottom of sand and rock, our soundings varying from 24 to 11 fathoms: after which we deepened our water, and, at ten o'clock at night, entirely lost bottom, about 12 leagues from the point from whence we had tacked in the morning. This bank whose limits to the N. W. we had not determined, is in the middle of the length of the course we had run in 23° of north latitude, and in $116^{\circ} 45'$ of E. longitude: its S. E. extremity is $22^{\circ} 52'$ of latitude, and $117^{\circ} 3'$ of longitude. It may not be dangerous, since our least depth of water was 11 fathoms; but the nature and inequality of the bottom renders it extremely suspicious, and it must be observed, that these shoals, which are very common on

the coast of China, have almost always points even with the water's edge, and have occasioned many shipwrecks.

Our board carried us back to the coast of Formosa, towards the entrance of the bay of the old fort Zealand*, on which stands the city of Taywan, the capital of the island. I was informed of the revolt of the Chinese colony, and I knew an army of 20,000 men had gone against it, under the command of the Santock of Canton. The N. E. monsoon, which still continued with violence, permitting me to sacrifice a few days to the pleasure of learning the last accounts of this event; I dropped anchor to the west of this bay in 17 fathoms water, although our boats had found 14 fathoms at a league and a half from the shore. But I was aware that it is not allowed to approach too near to the island, that there were only seven feet water in the port of Taywan, and that, when the Dutch were in possession of it, their vessels were obliged to remain at the Pescador islands, where was an excellent port which they had fortified. This circumstance rendered me extremely undetermined whether to send a boat on shore, as I could not have protected it with my frigates, and it would probably have been suspected in the then state of war of the Chinese colony. At best, I could only expect it to be sent back without permission to land: whereas, should it be detained, my situation would become extremely embarrassing, and the burning two or three *jampans* would have been a poor recompense for that misfortune. I therefore endeavoured to entice the crews of some Chinese boats that approached us to come on board, and shewed them some piastres, which I had found a powerful loadstone for that nation; but all communication with foreigners seemed to be prohibited: yet it was

* The plan of this fort is annexed to a letter of Father Manilla the Jesuit. See 14th Collection of Lettres Edifiantes.—*French Editor.*

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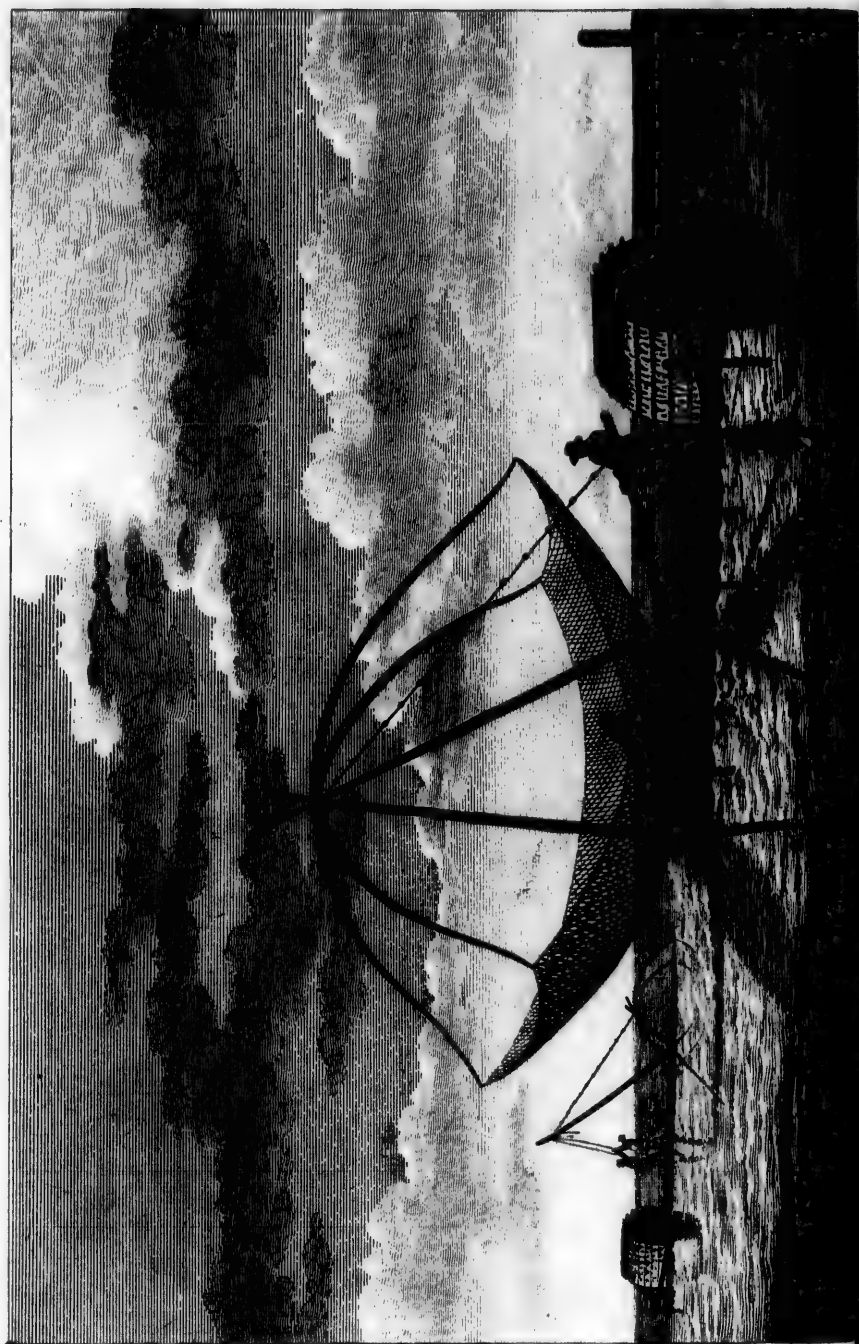
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evident we excited no fear in them, sure they passed within reach of our arms, though they refused to come along side. Only one of them was sufficiently bold; we gave him the price he asked for his fish, that he might make a more favourable report, should he dare acknowledge his having any communication with us. It was impossible, however, for us to understand the answers of these fishermen to our questions, which they certainly did not comprehend. Not only has their language no analogy with those of Europe, but their mimetic communication which we deem an universal tongue, is no better understood, and a motion of the head, which with us signifies yes, has perhaps with them an import diametrically opposite.

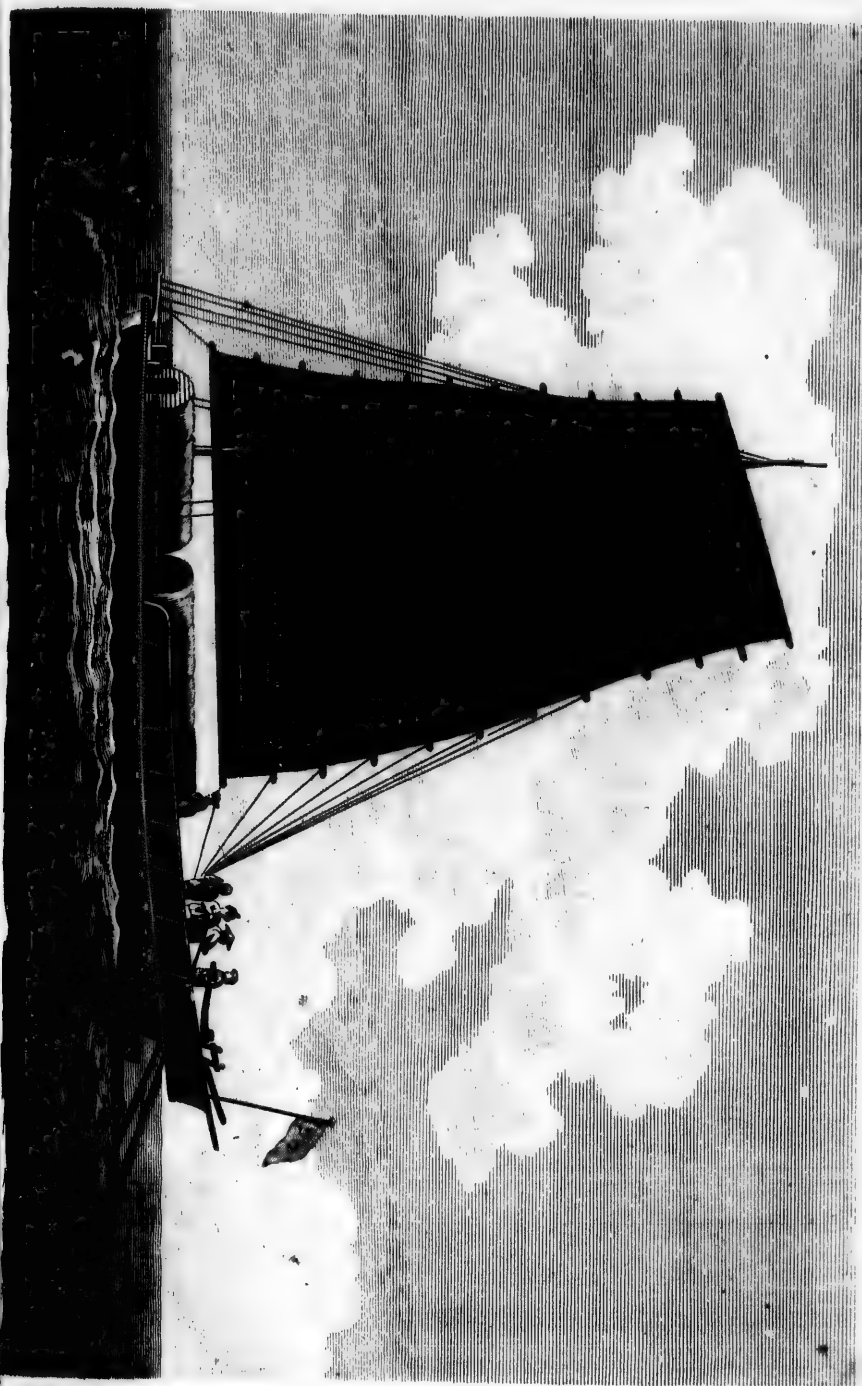
This essay, even supposing they should even give my boat the most favourable reception, convinced me of the impossibility of satisfying my curiosity. I therefore determined to get under way next morning with the land-breeze. Several fires along the coast, and which appeared to be signals, led me to believe we had caused an alarm. But, it was more than probable, the Chinese and rebel armies were not near Taywan, where we had only seen a small number of fishing boats, which, in time of warlike transactions, would have a very different destination. What was then mere conjecture soon became a certainty; the next day the land and sea breezes having permitted us to get ten leagues to the northward, we perceived the Chinese army at the mouth of a great river, in $23^{\circ} 25'$ N. lat. whose sand banks extend four or five leagues into the offing. We anchored opposite its mouth in 37 fathoms water over a muddy bottom; it was impossible to count all the vessels in sight, many of which were under sail, others riding at anchor along the coast, and a very great number in the river. The Admiral's ship, which was covered with flags, was farthest out to sea; he anchored near the edge of the sand banks a league to the eastward of our ships. All night he shewed lights

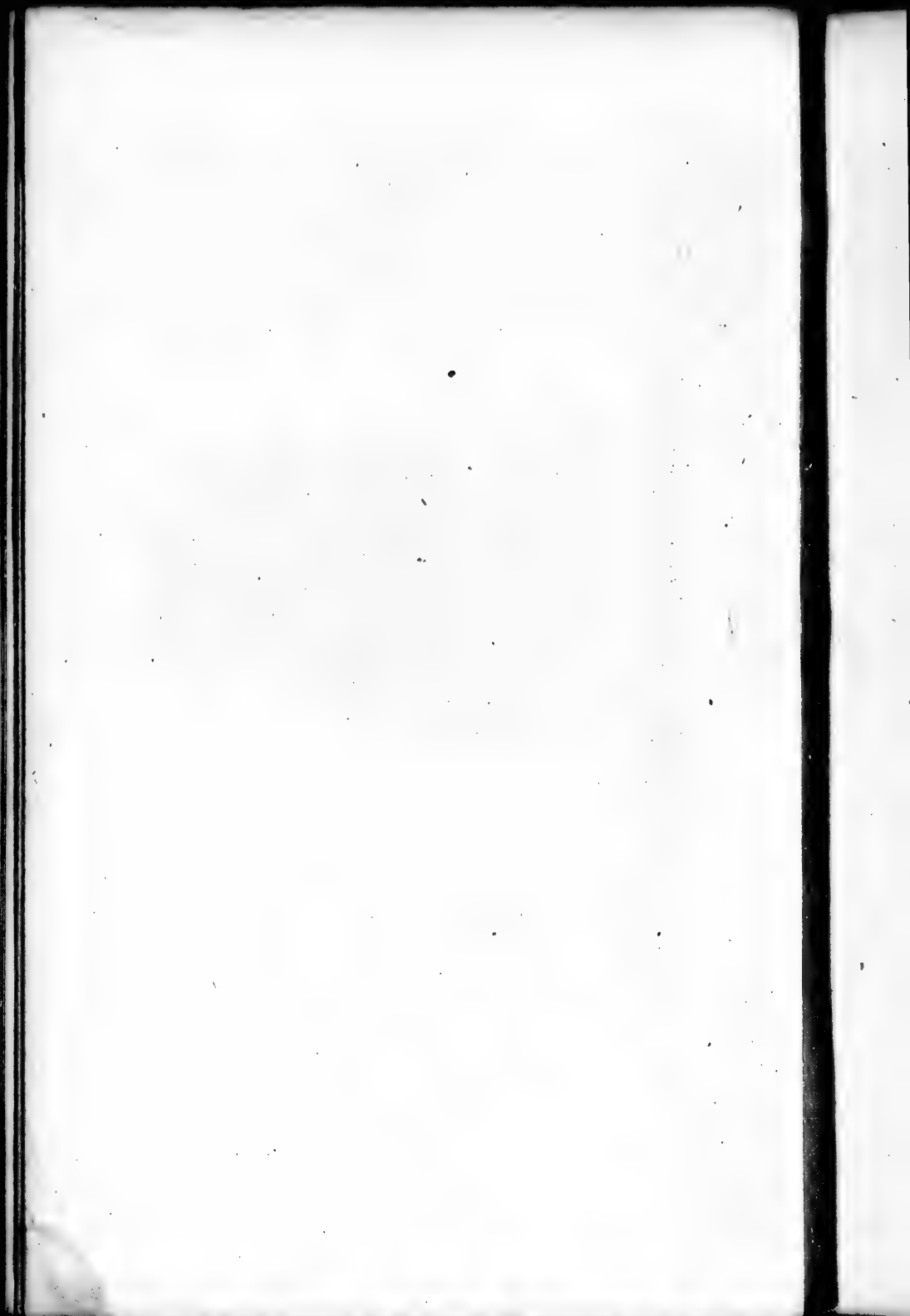
lights on all his masts, which served as signals to recall many vessels that were still to windward. These vessels being obliged to pass near us to join their Commodore, were very careful not to come within gunshot of us, uncertain whether we were friends or enemies. The light of the moon permitted us to make these observations till midnight, and we never more ardently desired that the weather should continue clear, that we might see the result of these events. We had descried the southernmost islands of the Pescadors bearing W. by N., and it is probable the Chinese army setting out from the province of Fokien, had rendezvoused in the island of Pong hou, the principal of the Pescadors, where is an excellent harbour, and that it had departed from thence, to commence its operations.

We could not however satisfy our curiosity, for the weather became so bad that we were obliged to get under full sail before morning, in order to save our anchor, which it would have been impossible to purchase had we delayed that operation one hour longer. The sky darkened at four o'clock in the morning, it blew a heavy gale, and the horizon no longer admitted of our distinguishing the land. At break of day I saw the Chinese Admiral's ship run before the wind towards the river with some other *sampanes* (vessels) which I still perceived through the fog. I stood out to sea under close-reefed top-sails and courses. The wind was N. N. E. and I flattered myself I should weather the Pescadors by standing to the N. W. To my great astonishment, at nine in the morning, I perceived several rocks forming a part of this cluster of islands, which bore N. N. W., and the weather was so hazy that it was impossible to distinguish them till we were very near. The breakers that surrounded them were confounded with those occasioned by the high waves. I had never seen a heavier sea in my life. I tacked towards Formosa again at nine o'clock in the morning,

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ing, and at noon the Astrolabe, being a-head of us, made a signal for 12 fathoms water while she was wearing; when I immediately sounded, and found 40 fathoms water. Thus in less than a quarter of a league there is a variation from 40 to 12 fathoms, and in all probability we should very soon have shoaled from 12 to two, since the Astrolabe only found eight fathoms while she was wearing, and that vessel was probably not four minutes in running on that short board. This circumstance apprised us that the channel between the islands north-east of the Pescadors, and the sand banks of Formosa was not more than four leagues wide. Consequently it would have been dangerous to have plied in it during the night in dreadful weather, with an horizon of less than a league in extent, and so heavy a sea, that every time we wore with the wind aft, we were in danger of its breaking on board of us. These various motives determined me to bear away, in order to run to the eastward of Formosa. My instructions did not enjoin me to pass through the channel, and I was but too well convinced that I should not succeed in it before the change of the monsoon, and as that period, which must necessarily be very near, is almost uniformly preceded by a very heavy gale of wind, I deemed it better to encounter those squalls out at sea, and I shaped my course towards the southern islands of the Pescadors, which I made, bearing W. S. W. Being obliged to adopt this measure, I was desirous at least to reconnoitre these islands as much as the bad weather would permit. We ran along them at a distance of two leagues, and they appeared to extend towards the south as far as $23^{\circ} 12'$, although the chart of Mons. Daprès lays down the southernmost $13'$ more to the north. We are not equally certain of their limits towards the northward. The most northerly that we observed, extends as far as $23^{\circ} 25'$, but we are uncertain whether there are not others still further to the northward.

These islands are a heap of rocks in every variety of form. One of them is an exact counterpart of the Tower of Cordouan at the mouth of the river of Bourdeaux; and we might almost aver, that the rock was cut by human hands. Among these little islands we counted five of a moderate height, which had the appearance of downs of sand; but we did not perceive a single tree. In fact, the dreadful weather at that time rendered our observations very uncertain. The description of these isles must therefore be learnt from the Dutch, who fortified the port of Pong-hou when they were masters of Formosa. We know also that the Chinese maintain a garrison there, consisting of five or six hundred Tartars, who are annually relieved.

As the water became much smother under the lee of these islands, we sounded there several times. The bottom was sandy, and so irregular, that the Astrolabe, at a musket-shot from shore, was in forty fathoms water, at the same time that we were in twenty-four, and presently after could not strike the ground. When night approached, I shaped my course S. by E. and at the return of day I hauled up E. S. E. in order to enter the channel between Formosa and the Bashee Islands. The next day we met with as strong a gale as on the preceding evening, which, however, continued only till ten o'clock at night. It was preceded by a heavy rain that could only be equalled between the tropics. The heavens were on fire during the whole night, and the most vivid lightnings flashed from every point of the horizon; yet we heard but a single clap of thunder. We ran before the wind under our fore-sail, and fore and main topsails close reefed, steering S. E. in order to double Vela-reta, which, according to the bearings we had taken before the close of the day of the southern point of Formosa, should have been four leagues to the eastward of us. The wind blew constantly from the N. W. during the whole night,

night, but the clouds flew with the greatest rapidity to the S. W. and a fog, which extended not above a hundred fathoms in height, followed the lower current of the wind. I had made the same observation during several days. It had not, however, determined me to stand out to sea during this crisis of nature, thus announced by the winds, and which the full moon rendered still more probable. We were becalmed the whole of the following day, and in mid channel between the Bashee Islands and those of Botol Tabaco-xima. This channel is 16 miles wide, our observations having fixed the S. E. point of the latter in $21^{\circ} 57'$ N. lat. and $119^{\circ} 32'$ E. long. The winds having permitted us to approach this island within two-thirds of a league, I distinctly perceived three villages on the southern coast, and a canoe which seemed to be making towards us. I would willingly have paid a visit to these villages, which in all probability were inhabited by a race of men similar to those of the Bashees, whom Admiral Dampier has described as so good and hospitable; but the only bay that seemed to promise us anchorage was open to the S. E. winds, which appeared likely to blow very shortly, since the clouds drove with rapidity in that direction. In fact, towards midnight the wind settled in that quarter, and permitted me to steer N. E. by N. which is the direction M Daprès gives the island of Formosa as far as $23^{\circ} 30'$. We had founded several times on our approach to Botol Tabaco-xima, and within half a league of land, without striking ground; and every indication shews, that if there is anchorage, it is extremely near the coast. This island, on which no navigator ever landed, may be four leagues in circumference. It is separated by a channel half a league in width from a small island or very great rock, whereon we perceived some little verdure, and a few bushes, but which is neither inhabited, nor habitable.

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The island, however, appears to contain a considerable number of inhabitants, since we counted three extensive villages in the space of a league. It is very woody from about one-third of its elevation, taken between the water's edge and its summit, which appeared crowned with trees of the largest size. The declivity of the space between these forests and the beach is very rapid. It was covered with the most beautiful verdure, and in many places cultivated, though furrowed by the torrents that descend from the mountains. I believe Botol Tabaco-xima may be seen at a distance of 15 leagues when the sky is clear; but this island is very often covered with fogs, and it should seem Lord Anson only observed the small island just mentioned, which is not half so high. After having doubled this island, we directed our course to the N. N. E. with constant attention during the night, to observe if any land presented itself before us. A strong northerly current prevented our knowing with any certainty the way we made; but a very fine moon and the minutest attention protected us against the inconveniences of navigating in an archipelago very little known by geographers; for it is only known by a letter of Father Gaubil, a missionary, who had learnt some particulars of the kingdom of Liqueo, and its thirty-six islands, from an ambassador of the king of that country, with whom he was acquainted at Pekin.

It is evident how insufficient to navigation are determinations of longitude and latitude on such data. It is, however, a great advantage to know that there exist islands or rocks in the parts where we are sailing. On the 5th of May, at one o'clock in the morning, we discovered an island bearing N. N. E. We passed the rest of the night under easy sail, standing off and on, and at break of day I endeavoured to have the island bearing W. at half a league distance. We sounded frequently, but as yet found no bottom. We soon had sufficient proof that the island was inhabited, for we
saw

saw fires in several places, and herds of cattle passing along the shore. As soon as we had doubled its westernmost point, which is the most beautiful and best inhabited part of the island, several canoes left the coast to observe us. We seemed to inspire them with the greatest terror; for though their curiosity brought them within musket-shot, their fears made them immediately fly from us with precipitation. At length our cries, our gestures, our signals of peace, and the sight of some manufactures induced two of them to come on board, when I ordered a piece of nankeen and some medals be given to each. We perceived that they had not left the coast with any view to trade with us, for they had nothing to offer us in exchange for our presents. They fastened a bucket of fresh water to a rope, making at the same time a sign that they did not think they had discharged the obligation, but that they would go on shore and return with provisions, expressing this intention by putting their hands to their mouth. Before they had come alongside, they had placed their hands on their belly, and raised their arms towards heaven. We repeated these signs, on which they came on board, but with a distrust which their physiognomy never ceased to express. They invited us however to come nearer the shore, making signs that we should want for nothing. These islanders are neither Chinese nor Japanese: situated between these two empires, they seem in some respects analogous to each. They were dressed in a callico shirt and drawers, their hair turned up on the crown of their head, and rolled round a bodkin, which appeared to be gold; and they had each a poniard with a handle of the same metal. Their canoes were hollowed trees, which they managed very badly. I wished to have gone ashore, but as we had brought to in order to wait for their canoes, and the current drifted us to the northward with extreme rapidity, we had fallen much to leeward, and we might have in vain attempted to

to near it again; nor had we a moment to lose, as it was of great importance to quit the sea of Japan before the month of June, when the storms and hurricanes commence, which render those seas the most dangerous in the universe.

It is evident that vessels which had been long at sea might procure wood, water, and provisions in this island, and even perhaps trade there in a small degree. But as it is scarcely three or four leagues in circumference, it is not probable its population should exceed four or five hundred, and a few gold bodkins are not a proof of considerable riches. I have continued to distinguish this island by the name of *Kumi*, and in the chart of Father Gaubil, where it is laid down nearly in the same latitude and longitude as our observations, which fix it in $24^{\circ} 33'$ N. lat. and $120^{\circ} 56'$ E. long. In that chart *Kumi* is one of a cluster of seven or eight islands, of which it is the most westerly, and is separated from those supposed to lie east of it by channels from eight to ten leagues wide, for our horizon was of that extent without seeing land. According to the description of Father Gaubil of the great island of Liqueo, the capital of all the islands eastward of Formosa, I am led to believe that the Europeans would be received there, and that they might carry on a trade equally advantageous with that of Japan.

At one o'clock in the afternoon I crouded sail, and stood to the northward without waiting the return of the islanders, who had signified that they would presently bring us some provisions. We had still plenty, and a fair wind now invited us not to lose so precious an opportunity. I therefore continued my course to the northward under a croud of sail, and we had lost sight of *Kumi* by sunset, though the sky was clear, and our horizon seemed to have an extent of ten leagues. During the night I kept under easy sail, and brought to at two in the morning, after having run five leagues, supposing

supposing the current to have carried us ten or twelve miles a-head of our reckoning. At day break I descried an island bearing N. N. E. and several rocks or small islands further to the eastward. I steered a course to pass to the westward of this island, which is circular, and well wooded towards that side. I passed it at a distance of a mile without finding bottom, and perceived no traces of any human habitation. It is so steep that I do not even think it habitable. Its extent may be two miles in diameter, or as many leagues in circumference. While we were abreast of it, we discovered a second island of the same size, equally woody, and nearly of the same form, though somewhat less elevated. It bore N. N. E. and between these islands were five clusters of rocks, round which hovered an immense number of birds. I have continued to this latter the name of *Hoapinsu*, and to that more to the N. N. E. that of *Tiaoyu-fu*, which the same missionary has given to the islands lying east of the northermost point of Formosa, and which are laid down in the chart much further to the southward than according to our observations*, which place Hoapinsu in $25^{\circ} 44'$ N. lat. and $121^{\circ} 14'$ E. long. and that of Tiaoyu-fu in $25^{\circ} 55'$ N. lat. and $121^{\circ} 27'$ E. long.

We had now quitted the archipelago of the islands of Liqueo, and were entering a more open sea between Japan and China, where some geographers affirm there are soundings every where. This observation is exact. But it was only in $24^{\circ} 4'$ that we had 70 fathoms, and from that latitude till beyond the Straights of Japan we always got bottom. The coast of China is so flat, that in 31 deg. we were only in twenty-five fathoms water, at more than thirty leagues from the coast. I had proposed at my departure from Manilla

* The chart of Father Gaubil lays down a third island N. W. of Hoapinsu, called *Pongkiachan*, and nearly at the same distance from it as Tiaoyu-fu. If this island exists, it is surprising, La Pérouse did not see it. See *Lettres Edifiantes*, 28th Collection.—*French Editor*.

to reconnoitre the entrance of the Yellow Sea to the northward of Nankin, should circumstances admit of my devoting some weeks to it. But in all events it was important to the success of my ultimate plans, to be at the mouth of the Straights of Japan before the 20th of May; and I experienced on the northern coast of China obstacles which permitted me only to make seven or eight leagues a day. The fogs were as thick and constant as on the coast of Labrador. The winds, which were very light, never varied but from N. E. to E. and we were often in a dead calm obliged to bring up, and to make signals to continue at anchor, because we did not perceive the *Astrolabe*, although she was within hail. The currents also were so strong, that we could not keep a lead to the ground to inform us whether we drove; and though the tide only ran at the rate of three knots an hour, its direction was incalculable, because it changed every moment, and ran all round the compass in twelve hours, without one moment of slack water. During ten or twelve days we had but for one instant a clear sky, that permitted us to observe a small island or rock in $30^{\circ} 45'$ N. lat. and $121^{\circ} 26'$ E. long. and immediately it thickened again, so that we knew not whether it was contiguous to the continent, or separated from it by a wide channel: for we had not one view of the coast, and our least depth of water was twenty fathoms.

On the 19th of May, after a fortnight's calm, with a thick fog, the wind became fixed at N. W. and blew hard. The sky was dull and watery, but the horizon extended several leagues. The sea, which had till then been perfectly smooth, now became extremely heavy. I was at anchor in twenty-five fathoms water at the moment of this change. I made the signal to get under way, and steered, without losing a moment, N. E. by E. towards the island of *Quelpaert*, which was the first interesting land-fall before we entered

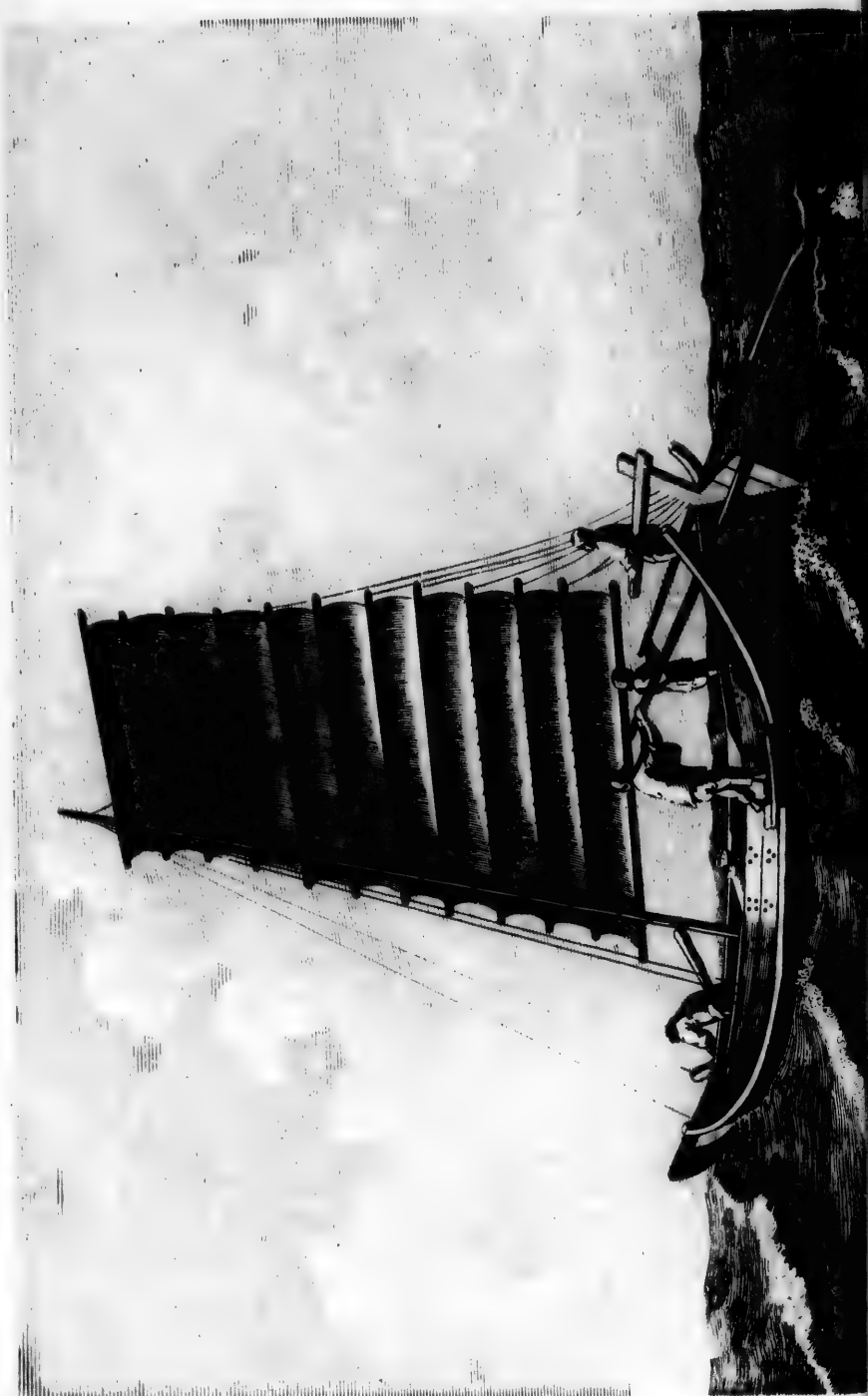
entered the Streights of Japan. This island, which is only known to Europeans by the shipwreck of the Dutch ship the Sparrow-hawk, in 1635, was at that period under the dominion of the King of Corea. We made it on the 21st of May, in the clearest weather possible, and in circumstances the most favourable for lunar observations. We fixed the southernmost point in $33^{\circ} 14'$ N. lat. and $124^{\circ} 15'$ E. long. I coasted the S. E. part of it at two leagues distance, and surveyed with the greatest care an extent of coast of twelve leagues, of which Mr. Bernizet has made a draught. It is scarcely possible to find an island which presents a more beautiful appearance: a peak about 6000 feet high, and which may be perceived at a distance of from eighteen to twenty leagues, rises in the centre of the island, whose reservoir, no doubt, it forms. Its surface is a gentle declivity to the sea, from whence the habitations resemble an amphitheatre. The soil appeared cultivated to a very great height. We perceived, by means of our glasses, the divisions of the fields, which being very small, prove the island very populous. The varying shades of the different species of cultivation, gave it a still more agreeable aspect. Unfortunately it belongs to a nation to whom every kind of communication with strangers is prohibited, and who retain in slavery those who have the misfortune to be shipwrecked on their coast. Some Dutchmen who were on board the Sparrow-hawk, after a captivity of eighteen years, during which they were frequently bastonadoed, found means to run away with a boat to Japan, and from thence to Batavia and Amsterdam. With this example before us, we felt no inclination to send a boat on shore. Though we observed two canoes put off from the island, they did not come within a league of us, and it is probable their only object was to observe us, and perhaps to give the alarm on the coast of Corea.

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I continued my course till midnight N. E. by E., and then lay to till daybreak, when the weather was hazy, but without thick fog. I perceived the N. E. point of the island of Quelpaert bearing west, and I steered N. N. E. in order to approach Corea. We did not omit to sound every hour, and found from 60 to 70 fathoms water. At day-break we discovered various islands or rocks forming a chain of more than 15 leagues off that continent, and lying nearly N. E. and S. W. Our observations place the most northerly in $30^{\circ} 15'$ N. lat., and $127^{\circ} 7'$ E. long. A thick fog concealed the coast, which is not more than 5 or 6 leagues beyond them. We got sight of it the next day, about 11 o'clock in the morning, when it appeared behind the small islands or rocks by which it was skirted. Two leagues to the southward of these islands we had constantly from 30 to 35 fathoms water, over a muddy bottom. The sky was continually dull and watery, but the sun pierced through the fog, and we were enabled to take the most accurate observations of latitude and longitude: a circumstance of the greatest importance to geography, no European ship having ever navigated in these seas. They are laid down in our charts according to the Japanese or Corean maps, published by the Jesuits. It is true, these missionaries have corrected them by their land journeys, which they laid down with great care, and compared with very accurate observations made at Pekin. Thus their errors are very inconsiderable; and we must acknowledge that they have rendered an essential service to the geography of that part of Asia with which they alone have made us acquainted, and of which they have furnished us with charts very near the truth. Navigators have therefore now only to desire such hydrographical details, as could not be laid down in a map, because the Jesuits travelled by land.

On the 25th we passed the Streights of Corea in the night. We had set, after sun-set, the coast of Japan,

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pan which extends from E. by N. to E. S. E. and that of Corea, from N. W. to N. The sea appeared very open to the N. E. and a heavy swell coming in that direction, confirmed me in this opinion. The wind blew from the S. E. a moderate breeze, and the night was very clear. We ran before the wind under very easy sail, making only two knots an hour, in order to recognize at day break the bearings we had taken the preceding evening, and to make an exact chart of the strait. Our bearings, corrected by the observations of M. Dagelet, have accomplished all that can be desired with regard to the accuracy of the plan we have given. We founded every half hour, and as the coast of Corea appeared to be more interesting than that of Japan, I approached within two leagues of it, and steered a course parallel to its direction.

The channel that separates the coast of Japan from the continent may be 15 leagues wide, but it is reduced to 10 leagues by rocks which uninterruptedly border the southern coast of Corea, from Quelpart, and which continued till we had doubled the S. E. point of that peninsula, so that we were able to keep very close to the continent, distinguish the houses and towns on the coast, and reconnoitre the bays. We saw on the summits of the mountains some fortifications exactly similar to European forts. It is highly probable the principal means of defence employed by the Coreans, are directed against the Japanese. This part of the coast is very favourable to navigation, for there appears no cause of danger, and at three leagues in the offing the depth of water is 60 fathoms over a muddy bottom; but the country is mountainous, and appears very arid. The snow was not entirely melted in some hollows, and the soil seemed but little susceptible of cultivation. The habitations are, however, very numerous. We counted a dozen *sampans*, or junks, sailing along the coast, and seeming in no respect, to differ from those of China, their sails being also

made of matting. The sight of our ships seemed to occasion them no apprehension; though, it is true, they were very near the land; and might reach it before they could be brought to, had our movements excited any fear of danger. I was very desirous they should venture to come along side of us, but they continued their course without taking any notice of us; and the phenomenon we afforded them, however new, did not even attract their attention. At 11 o'clock, however, I saw two boats set sail in order to reconnoitre us. They came within a league of us, followed us during two hours, and then returned into the port from which they had put off in the morning: and it is probable we caused an alarm on the coast, as, in the afternoon, we observed fires lighted on every point of land.

This day (the 26th) was one of the finest we enjoyed during this voyage, as well as the most interesting, on account of the observations we made of an extent of coast of above 30 leagues. Notwithstanding this fine weather the barometer fell to 27 inches 10 lines. But as it had often deceived us, we continued till midnight on the same course along the coast, which we distinguished by the light of the moon. The wind then chopped about with considerable violence from south to north, without announcing this sudden change by a single cloud. The sky, though before clear and serene, now become very black, and I was obliged to stand off to sea, to avoid being embayed by the easterly winds. Though the clouds had not given us notice of this change, yet we had an indication, which, at the time, we did not understand, and which it is not perhaps very easy to explain. The watch called down from the round-top, that they felt burning vapours like that from the mouth of an oven, which came in puffs, and succeeded one another at the interval of half a minute. All the officers went aloft and experienced the same heats. The thermometer was, at that time, at 14° upon

upon deck. We sent a thermometer aloft to the cross-trees, where it rose to 20° deg. In the mean while the puffs of hot vapour passed very rapidly; though, in the intervals, the temperature was the same as on a level with the sea.

We experienced, during this night, a gale of wind from the north, and though it lasted only seven or eight hours, the sea was very heavy. As the channel between Corea and Japan must be of a considerable width in this latitude, we had no cause of apprehension from bad weather. The next day I again approached within three leagues of the coast. It was free from fog, and we recognized the points we had set the preceding evening. Notwithstanding the strength of the wind, we had gained a little to the northward; and the coast began to trend to the N. N. W. Thus we had sailed beyond the easternmost part, and determined the most interesting portion of the coast of Corea. I thought, therefore, I ought now to direct my course for the S. W. point of the island of Nippon, of which Captain King had accurately observed the N. E. point, or Cape Nabo. These two points ought to clear up the doubts of geographers, who will now only have to exercise their ingenuity in filling up the intermediate coast. On the 27th I made the signal to bear away to the eastward; and I presently perceived, bearing N. N. E., an island not laid down on any chart, and which appeared about 20 leagues distant from the coast of Corea. I endeavoured to approach it, but it was precisely in the wind's eye. Fortunately the wind changed during the night, and I steered a course, at day-break, so as to reconnoitre this island, to which I gave the name of *Isle Dagelet*, from the astronomer who first discovered it. It scarcely exceeds three leagues in circumference. I ran along it, and sailed almost round it at the distance of a mile, without finding bottom. I then hoisted out a boat under the command of M. Boutin, with orders to sound as far as the shore. He did not strike ground with a 20 fa-

thom line till on the edge of the waves that broke upon the coast, and about 200 yards from the island, whose N. E. point lies in $37^{\circ} 25'$ N. lat., and $129^{\circ} 2'$ E. long. It is very steep, but is covered from its summit to the water's edge with the finest trees. A rampart of bare rock almost as perpendicular as a wall entirely furrounds it, with the exception of seven little sandy creeks where it is possible to land. In these creeks we perceived some boats upon the stocks, exactly on the Chinese model. The sight of our ships, which passed within an easy gun shot, had doubtless frightened the workmen, who fled into the wood, from which their ship-yard was about 50 paces distant. We saw nothing more except some huts, which neither formed a village, nor were surrounded by any appearance of cultivation. Hence it is probable that the shipwrights of Corea, which is not more than 20 leagues from this island, come hither in summer with their provisions, to build boats, which they sell upon the continent. This opinion almost appears a certainty : for as soon as we had doubled the westernmost point, the workmen of another boat-yard, who could not till then see our ships, which that point intercepted, were surprised by us near their timber at work upon their boats ; and we saw them all fly to the woods, except two or three, who did not appear to be at all alarmed. I was desirous of finding anchorage, in order to convince these people, by a display of kindness, that we were not enemies. But the violence of the current drove us off the land, night approached, and the fear of being carried to leeward, and of not being rejoined by the boat I had sent off with M. Bontin, obliged me to make a signal for him to come on board, at the very moment when he was about to land. I hauled towards the Astrolabe, the currents having drifted her considerably to the westward, and we passed the night in a calm, the height of the mountains of Dagelet Island intercepting the sea breeze.

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CHAP. XVII.

ROUTE TOWARDS THE NORTH WEST PART OF JAPAN.
 VIEW OF CAPE NOTO, AND THE ISLAND OF JOOTSI-
 SIMA—DETAILS REGARDING THIS ISLAND—LATI-
 TUDE AND LONGITUDE OF THIS PART OF JAPAN—
 WE MEET WITH SEVERAL JAPANESE AND CHI-
 NESE VESSELS—WE RETURN TOWARDS THE COAST
 OF TARTARY, WHICH WE MAKE IN 42° NORTH LAT.
 —WE PUT INTO THE BAY OF TERNAI—DESCRIP-
 TION OF THE COUNTRY AND ITS PRODUCTIONS—
 WE GET UNDER WAY AFTER A STAY OF THREE
 DAYS—WE PUT INTO THE BAY OF SUFFERN.

ON the 30th May, 1787, the wind having settled at S. S. E., I shaped my course to the eastward towards Japan; but I approached it by very short days runs, and the wind was so constantly opposite, and time so valuable, that had I not considered it of the greatest importance, to determine one or two points of the western coast of the island of Nippon, I should have abandoned that survey altogether, and have run before the wind to the coast of Tartary. On the 2d June, in $37^{\circ} 38'$ N. lat. and $132^{\circ} 10'$ E. long. according to our time-pieces, we descried two Japanese ships, one of which passed us within hail. It had a crew of 20 men all dressed in blue cassocks of the make of those used by our priests. This vessel was about 100 tons burden, and had only one very tall mast in the middle, which appeared to be formed of a number of small masts bound with copper hoops and woodings. Her sail was of cloth, and the seams were not sewed but laced lengthwise. This sail appeared extremely large, and two jibs with a sprit-sail, composed the rest of her fit. A small gallery, three feet broad, projected on each side, from her stern, one third of her length.

She had beams on her stem which projected, and were painted green. Her boat placed athwart her bows, exceeded by seven or eight feet the breadth of the vessel, which had in other respects a very ordinary sheer, a flat poop with two small windows, and very little carved work; and had no other resemblance to Chinese junks than that of fastening her helm by cords. Her side gallery rose but two or three feet above her water line, and the extremities of the boat must have touched the water as the vessel rolled. Every thing indicated that these vessels were not intended to go far from the coast. They could not be safe in a heavy sea during a gale of wind. Probably the Japanese have other vessels for winter, better calculated to contend with bad weather. We passed this vessel near enough to observe the countenances of her crew, which expressed neither fear nor surprise. They did not change their course till they came within pistol shot of the Astrolabe, and were in fear of falling aboard of her. They had a small white Japanese flag, on which were some words written vertically, and her name was inscribed on a kind of drum by the side of the ensign staff. The Astrolabe hailed her as she passed, but we neither understood her answer, nor her crew our question: and she continued her course to the southward, hastening no doubt, to announce her meeting with two foreign ships, in seas where no European vessel had ever been seen before. On the fourth in the morning in $133^{\circ} 17'$ E. long. and $37^{\circ} 13'$ N. lat., we thought we saw land. But the weather was extremely foggy, and our horizon was soon confined to a quarter of a league at the most. It then blew very fresh from the southward, and the barometer had fallen half an inch in twelve hours. At first I was willing to bring to, in hopes that the sky would clear up, but the wind freshened still more in the afternoon. The mizen top-mast was blown away, we handed the topsails and lay to under the fore-sail,

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JAPANESE BOAT

fore-sail. At different parts of the day we perceived seven Chinese vessels, masted like that I have described, but without side galleries; and though smaller, better calculated to encounter bad weather. They were exactly similar to those seen by Captain King, during Cook's third voyage, having like them, three black streaks in the concavity of their sail, and being thirty or forty tons burden with a crew of eight men. While the violence of the wind continued we saw one aground, her mast, naked like those of chassé-marées, was braced by two shrouds and a stay carried to the stem, for these vessels have no bowsprit, but only an upright spar eight or ten feet high, from which the Chinese rig a small fore-sail like that of a boat. All these junks ran close to the wind with their larboard tacks on board, steering W. S. W., and it is probable, they were not far from the land, since these vessels never sail but along the coast. The next day which was extremely foggy, we perceived two more Japanese vessels: and it was not till the sixth, that we made Cape Noto and the island of Jootsi-sima*, which is separated from it by a channel about five leagues wide. The weather was clear, our view extensive, and though six leagues from the land, we distinguished small objects, as trees, rivers and rubble. But some rocks or islets, along which we coasted at a distance of two leagues, and which were connected by chains of rocks, even with the water's edge, prevented us from approaching nearer to the coast. At that distance the depth of water was sixty

* Geographers have hitherto given the name of Jootsi-sima to the island lying to the N. E. of Cape Noto. La Pérouse gives the same name to another island seen by him five leagues to the N. E. of that Cape, and which is laid down in all the charts without a name.

I know not whether this proceeds from an error of La Pérouse, but I thought it necessary to caution the reader against a mistake that might arise from two islands of the same name, being laid down so near the same Cape.—*French Editor.*

fathoms, over a bottom of rock and coral. At two o'clock we saw the island of Jootsi-sima bearing N. E., I shaped my course along its western coast, and was presently obliged to haul our wind in order to weather the breakers so dangerous in the fogs, which at this season, almost constantly conceal the northern coast of Japan. A league and a half from these breakers we had still sixty fathoms water over a rocky bottom, and could not think of anchoring there, except in a case of extreme necessity. This island is small and flat; but well wooded, and wears a very pleasing appearance. I believe its circumference does not exceed two leagues. It appeared to us extremely populous, and we remarked among its buildings some edifices of considerable magnitude. Near a sort of castle on its S. W. point, we distinguished a gallows, or at least, some pillars with a large beam laid across, which might, however, be destined for a very different purpose. It would be singular if the Japanese customs, in general so different from ours, should coincide with them in this respect. We had no sooner doubled the island of Jootsi-sima, than we were instantly enveloped in a cloud of the thickest fog. Fortunately we had found time to take excellent bearings of the coast of Japan to the southward of Cape Noto, as far as another cape beyond which we perceived nothing.

Our observations of latitude and longitude were as complete as we could desire, and our time-piece No. 19, had continued perfectly accurate since our departure from Manilla. Thus Cape Noto on the coast of Japan, is a point on which geographers may rely, and, together with Cape Nabo on the eastern coast, determined by Captain King, will give the breadth of that empire toward the north. Our observations will render a still more essential service to geography, for they will determine the breadth of the sea of Tartary, towards which I directed my course.

The

The coast of Japan which runs away beyond Cape Noto sixty leagues to the eastward, and the continual fogs that hover over these islands, might perhaps have caused the rest of the season to elapse before we could coast along and take the bearings of the Isle of Nippon, as far as Cape Sangaar. We had a much larger field of discovery to explore on the coast of Tartary and in the strait of Tesso, and I therefore thought it necessary, not to lose a moment in arriving there as soon as possible. Nor had I any other object in view in reconnoitring the coast of Japan, than to fix the true limits of the sea of Tartary from north to south. Our observations place Cape Noto in $37^{\circ} 36'$ N. lat. and $135^{\circ} 34'$ E. long.; the island of Jootsifima in $37^{\circ} 51'$ N. lat. and $135^{\circ} 20'$ E. long. an islet or rock to the westward of Cape Noto, in $37^{\circ} 36'$ N. lat. and $135^{\circ} 14'$ E. long., and the southernmost point within sight on the island of Nippon, in $37^{\circ} 18'$ N. lat. and $135^{\circ} 5'$ E. long.

These short observations, which will appear very dry to the majority of our readers, cost us ten days of most laborious navigation in the midst of fogs. But we doubt not, geographers will deem our time well employed, and will only regret that the vast extent of our projected voyage did not admit of our reconnoitring, and determining a greater number of points on this coast, and particularly towards the south-west part of it, from which the true limits of the strait, which separates that empire from Corea might have been delineated. We have taken the bearings of the coast of this peninsula with the greatest accuracy, as far as the point where it ceases to run to the N. E. and pursues a westerly direction, which obliged us to get into the 37th degree north. The most constant and obstinate south winds opposed our intention of seeing and determining the southernmost and westernmost points of the island of Nippon. The same winds continued till we were in sight of the coast of Tartary,

tary, which we descried on the 11th of June. The weather had cleared up on the preceding evening. The barometer had fallen to 27 inches seven lines, and there remained stationary, and yet it was during the time it remained at that point, that we enjoyed the two finest days we had experienced throughout the voyage. That instrument, since our departure from Manilla, had so often given us just prognostications that we forgave its occasional deviations: from these, however, it appears that there is a state of the atmosphere which, without causing either rain or wind, produces a considerable variation in the barometer. That of the Astrolabe was at the same point as ours, and it appears, that a long course of observations are yet wanting, in order to teach us the language of this instrument, which in general may be of great use in contributing to the security of navigation. That of Nairne with his ingenious mode of suspension, is incomparably superior to every other. The point of the coast where we made our land fall, is precisely that which separates Corea from Mantchou Tartary. It is a very high land which we descried on the 11th at a distance of 20 leagues. It extended from the N. N. W. to N. E. by N., appearing in different ranges, and the mountains, though not so elevated as those of America, are at least six or seven hundred toises high. We only begun to get soundings at four leagues from shore, where the depth of water was 180 fathoms, over a bottom of muddy sand: and at one league from the shore it was still 84 fathoms. I approached within that distance of the coast, which was extremely steep, but covered with trees and verdure. We saw snow on the summits of the highest mountains, though in very small quantities; but we perceived no traces of cultivation or inhabitants: and we imagined that the Mantchou Tartars, who are wandering shepherds, neglected these mountains and forests, for plains and valleys, where their flocks could enjoy a more abundant pasturage.

pasturage. Throughout this extent of coast of more than 40 leagues, we did not meet with the mouth of a single river. I should have been desirous, however, of touching there that our botanists and mineralogists might observe the soil and its productions; had not the coast been perpendicular, and as we had eighty-four fathoms water at one league distance, we must probably have approached within two or three cables' length of the shore to be twenty fathoms, and then we should not have been able to get under way with the sea breezes. Flattering myself with the hopes of finding a more commodious situation, I continued my course with the finest weather and the clearest sky we had enjoyed since our departure from Europe. We took our bearings on the 12th, 13th, and 14th, with equal success, ranging along the land, at something less than three leagues distance. On the last of these days, at six in the evening, we were enveloped in fog and becalmed. A very light breeze from the S. E. just permitted us to steer. Till then the coast had run to the N. E. by N. We were already in the 44th degree of latitude, the situation allotted by geographers to the pretended strait of Tessoy; but we were five degrees to the westward of the longitude assigned to this strait, a difference which must be deducted from the continent of Tartary, and added to the channel which separates it from the islands lying to the northward of Japan.

The 15th and 16th of June were very foggy days. We kept within a small distance of the coast of Tartary, and got sight of it at intervals; but the last of these days will be distinguished in our journal by the most complete illusion I have witnessed since I have been a seaman.

At four in the afternoon a perfectly clear sky succeeding to the thickest fog, we descried the continent extending from W. by S. to N. by E. and soon after, an extensive land in the south, running towards

wards Tartary in the west, where it left an opening of less than fifteen degrees. We distinguished the mountains, hollows, and all the variations of the ground, but could not imagine how we had entered this strait, which must necessarily be that of Tessoy, of which we had given up the pursuit. In this situation I thought it necessary to haul the wind, and steer S. S. W.; but these hills and hollows soon disappeared. The most extraordinary fog-bank I had ever beheld had occasioned this deception, and we soon witnessed its dispersion. Its forms and its tints mounted, and vanished in the atmosphere among the clouds; and enough of day still remained fully to demonstrate that land to be unsubstantial and imaginary. I stood on, during the night, over the space it had appeared to occupy, and at day-break no object presented itself to our view. The horizon was even sufficiently extensive to admit of our distinctly seeing the coast of Tartary, although more than fifteen leagues distant. I shaped my course towards it, but at eight in the morning the fog again surrounded us. Fortunately there had been time to take good bearings, and recognize the points we had set on the preceding evening. Thus there is no blank on our chart of Tartary from our land-fall in 42° as far as the strait of Segalien.

The fog was still very thick on the 17th, 18th, and 19th, but we made no way, and stood off and on, in order again to recognize, at the first clear interval, the mountains we had before described and laid down on our charts. On the 19th, at night, the fog dispersed: we were then but three leagues from the land, and surveyed an extent of coast of more than twenty leagues, from W. S. W. to N. N. E. Its whole outline was perfectly distinct, and the clearest atmosphere permitted us to observe all its tints; but in no part did we perceive the appearance of a bay, and at the distance of four leagues from the land
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we could not strike ground with a line of two hundred fathoms. The fog soon obliged me to stand out to sea, and we did not again perceive the coast till the next day at noon. We were then very near it, and never had an opportunity of taking better bearings. We were in $44^{\circ} 45'$ N. lat. and set a point of land bearing N. E. by N. which was at least fifteen leagues distant from us. I ordered the Astrolabe to make sail a-head, and look out for anchorage; and M. de Langle hoisted out his boat, and sent his first lieutenant, M. de Monti, to take the soundings of a bay we perceived before us, and which seemed to offer us shelter. At two leagues from the land the depth of water was one hundred and forty fathoms, and we had found two hundred at a distance of two leagues more. The water seemed to shoal gradually, and it was probable that at a quarter of a league from the land we should find forty or fifty fathoms, which though very considerable, it is extremely common to anchor in similar depths. We continued our course towards the land, and presently a thick fog-bank arose, which a light breeze from the north brought over us. Before M. de Monti had reached the bay, he had orders to sound; M. de Langle was obliged to make a signal for him to return on board. He rejoined his captain at the moment when we were enveloped in the thickest fog, which obliged us to stand out to sea. At sun-set we had another clear interval of a few minutes. Towards eight o'clock the next morning, having advanced but three leagues E. by N. in twenty-four hours, we could not set any other points, but those already laid down on our chart. We perceived the summit of a mountain precisely in the form of a *table*, to which I gave that name, that it might be easily recognized by future navigators. Since we had ranged along this land we had not discovered the least trace of its being inhabited; not even a canoc had put off from the coast: and this country,

country, though covered with the finest trees, which indicated a fertile soil, seemed to be neglected and despised, both by the Tartars and Japanese, who might have there established most flourishing colonies. The policy, however, of the latter is to prevent all emigration or communication with foreigners, and under this description they include—the Chinese as well as the Europeans.

The fog was very thick on the 21st and 22d, but we kept so close in with the coast, that we perceived it with the least clear interval, and had that opportunity every day at sun-set. The cold began to increase as soon as we had got into the forty-fifth degree of latitude, where the depth of water was fifty-seven fathoms, with a muddy bottom, at one league from the land.

On the 23d the wind settled at N. E. and I determined to stand in for a bay, which I saw to the W. N. W. and where it was probable we should find good anchorage. We dropped anchor there at six in the evening, in twenty-four fathoms water, and a sandy bottom, at half a league distance from the shore. I named it *Baie de Ternai*, which is situated in $45^{\circ} 13' N.$ lat. and $135^{\circ} 9' E.$ long. Although open to the east, I have reason to think the wind never blows directly in shore, but rather follows the direction of the land. The bottom is sandy, and shoals gradually to six fathoms, at a cable's length from the shore. The tide rises five feet, and at the full and change of the moon it is high water at fifteen minutes past eight; but its flux and reflux do not alter the direction of the current at half a league from the shore; that which we experienced at the anchorage never varied but from S. W. to S. E. and its greatest drift was one mile an hour.

It was now seventy-five days since our departure from Manilla, in which time we had ranged along the coasts of the islands of Quelpaert, Corea, and Japan;

Japan; the barbarity of whose inhabitants towards strangers precluded every idea of putting in there. On the other had, we knew that the Tartars were hospitable, and our force sufficient to overawe the small tribes we might meet with near the coast. We burnt with impatience to reconnoitre this country, with which our imagination had been filled ever since our departure from France. It was the only part of the globe which had escaped the indefatigable activity of Captain Cook, and we were perhaps indebted to the melancholy event, which put a period to his life, for the advantage of being the first who landed there. We had proof that the Kastrikum had never failed along the coast of Tartary, and we hoped to find, in the course of this expedition, new confirmation of that fact.

The geographers who, from the relation of Father des Anges, and some Japanese maps, had delineated the strait of Tessoy, and determined the limits of Jessô, of the (Dutch East India) Company's land, and of that of the Staten (or the States of Holland), had so distorted the geography of this part of Asia, that it was necessary to terminate all former disputes in this respect by incontestible facts*. The latitude of the bay of Ternai was then precisely the same with that of Port Aqueis, where the Dutch landed, though, as the reader will perceive, they are very different places.

Five small creeks, like the sides of a regular polygon, form the circumference of this roadstead. They are separated from each other by hills, clothed

* Almost all the geographers who have laid down an island to the northward of Japan under the name of Jêço, Yêço, or Jessô, have separated it from Tartary by a strait, to which they have given the name of Tessoy. This error has been continued, and we see in all the old maps this imaginary strait towards the 43d degree of N. lat. Its pretended existence must have arisen from the real strait, which separates the island of Segalien from the continent, and which William de Lisle has also named the *Strait of Tessoy*, in a map of Asia, dated 1700.—*French Editor.*

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with trees to their summits. The loveliest spring never produced in France shades of verdure equally various and lively; and although we had not perceived, while we sailed along the coast, either a cacoe or the smoke of a single fire, we could not believe a country so fertile and so near to China could be destitute of inhabitants. Before our boats landed, we viewed the coast with our glasses; but only perceived some stags and bears feeding in undisturbed tranquillity along the shore. This view encreased the impatience every one felt to land. Our arms were got ready with as much dispatch as if we had to defend ourselves against an enemy; and while these preparations were going on, some of the sailors, who were fishermen, took twelve or fifteen cod with their lines. The inhabitants of large cities cannot easily imagine the sensations of seamen at the sight of an abundant fishery. Fresh provisions are necessary for all men, and the least savory food is known to be far more salubrious than the best cured salt meat. I gave orders immediately to distribute no more salt provisions, but to keep them for less favourable circumstances. I had the casks got ready to be filled with the fresh and limpid waters rivulets of which flowed into every creek. I ordered culinary plants to be gathered in the meadows, where we found an immense quantity of small onions, of celery and forrel. The whole soil was carpeted with the same plants that grow in our own climate, but more vigorous, and of a finer verdure. The majority were in flower. At every step we met with roses, yellow and red lilies, and lilies of the valley, and, in general, all the flowers that adorn our meadows. The summits of the mountains were crowned with pines, and oaks began to cloath them from the middle, but diminished in size and vigour as they approach the sea. The banks of the rivers and brooks were lined with willows, birch, and maple; and the great
woods

woods skirted with apple-trees and medlars in bloom, with clumps of nut-trees, whose fruit was beginning to set. Our surprize encreased, when we reflected that the vast empire of China is surcharged with an excess of population, insomuch that the laws do not even punish parents who are barbarous enough to drown or destroy their children; that this nation, whose polity is so highly extolled, dare not pass the great wall to procure subsistence from a land whose vegetation requires rather to be restrained than accelerated. We found indeed at every step the traces of man marked by destruction; trees cut with sharp instruments, the ravages of fire in many various spots, and shelter constructed for hunters at the corner of the woods. We found also some small baskets, formed of the bark of birch, sewed with thread, exactly similar to those of the Canadian Indians, and some snow shoes. Every thing led us to conclude that some of the Tartars came down to the coast in the hunting and fishing season; that at present they were collected in villages along the course of the rivers, and that the great body of the nation lived up the country, on a soil more adapted to the multiplication of their immense herds.

Three boats from our two ships brought a number of officers and passengers ashore in Bear Creek, at half past six o'clock. By seven they had repeatedly fired at several wild beasts, who instantly took refuge in the woods. Three young fawns were the only victims of their inexperience, the noisy joy of our company on landing would otherwise have induced them to retire to the inaccessible woods, near which they fed. These meadows, so delightful to the eye, were scarcely passable. Buried in thick grass, three or four feet high, we could scarcely direct our steps. We were also in fear of serpents, of which we had found a great number on the banks of the rivulets, though we had no experience of the

nature of their venom. This land then was to us a magnificent solitude. The sands of the beach were alone passable, for in every other part we could not make the smallest progress without the most incredible fatigue. A passion for hunting, however, induced M. de Langle to overcome these difficulties, together with several other officers and naturalists, but without success; and we thought we should not be able to accomplish any thing except by extreme patience, and posting ourselves in ambush in perfect silence, on the track of the bears or stags, marked by their footsteps. This plan was fixed for the next day, yet it was difficult to be executed; and men do not go a voyage of 10,000 leagues, merely to sacrifice themselves in hunting for prey in the middle of a marsh, covered with muskitos. We however made the attempt on the 25th at night, after having passed the day in fruitless excursions. At nine o'clock every one had taken his post; and at ten, by which time the bears ought to have come out, we all agreed that fishing was a more advantageous and suitable pursuit than hunting: in fact, it proved far more successful. Each of the five creeks that form the circumference of the bay of Ternai, offered a convenient situation for hauling the seine, and received a rivalet near which we made our kitchen. Thus the fish were no sooner out of the water than we were ready to cook them. We caught cod, harp-fish, trout, salmon, herrings and plaice. Our crews had plenty at every meal, and we deemed this fish, and the herbs with which we seasoned them, during a stay of three days, a preservative against the scurvy, of which none of the crew had till then the least symptom, notwithstanding the damp and cold occasioned by the almost uninterrupted fogs. To these we had opposed chafing dishes placed under the hammocks, when the weather did not admit of bringing them up.

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It was after one of these fishing parties that we discovered a Tartar tomb by the side of a brook, near a ruined house, and almost buried in the grass. Our curiosity led us to open it, and we found two bodies placed side by side. Their heads were covered with a taffeta cap, and their bodies wrapped in a bear's skin, with a girdle of the same, to which were suspended some small pieces of Chinese money, and various trinkets of copper. Blue beads of glass were spread about in every part, and we found ten or twelve silver bracelets, as we supposed, weighing a quarter of an ounce each (which we afterwards found to be ear-rings), an iron hatchet, a knife of the same metal, a wooden spoon, a comb, and a little bag of blue nankeen filled with rice. Nothing was yet in a state of decomposition, and we could not imagine this monument more than twelve months old. Its workmanship appeared inferior to that of the tombs in Frenchman's Bay. It consisted of a small enclosure formed of pieces of trees, clothed with the bark of birch. Between these a space was left for the bodies. We restored every thing to its place with the most scrupulous minuteness, except taking away a very small portion of the various articles contained in the tomb, in order to establish our discoveries. We had no room to doubt that the hunters of Tartary frequently landed in this bay. A canoe, left near the tomb, informed us that they came by sea, doubtless from the mouth of some river we had not yet perceived.

The Chinese coins, the blue nankeen, the taffeta, and the caps, prove that the inhabitants have a regular commerce with the Chinese, and are probably subjects of that empire.

The rice in the little blue nankeen bag marks a Chinese custom, founded on an opinion, that our wants continue in another life. Lastly, the hatchet, the knife, the bear-skin cloak, and the comb, have the

strongest resemblance to those used by the American Indians. But as these nations never had any communications, may we not justly conclude, from these points of similarity, that men in the same degree of civilization and equal latitude, adopt nearly the same customs; and that, were they placed in circumstances exactly similar, they would not differ from each other more than the wolves of Canada from those of Europe.

Notwithstanding the beautiful appearance this part of eastern Tartary presented, yet it offered no interesting objects to our botanists and mineralogists. Its plants, and the substances which compose the soil, are precisely the same as those of Europe. The schists, quartzes, jasper, violet porphyry, small crystals, and amygdaloids, form the specimens from the beds of rivers, but we did not perceive the least traces of any of the metals. Iron ore, so general over the whole surface of the globe, only appeared decomposed in a state of oxyd, or as the colouring matter of different stones. Sea and land birds were also very rare. We saw, however, several ravens, turtle doves, quails, wagtails, swallows, fly-catchers, albatrosses, gulls, puffers, bitterns, and wild ducks. But nature was not here diversified with the innumerable species of birds found in other uninhabited countries. At the bay of Ternai they appeared but as solitary individuals, and the profoundest silence reigned within the woods. Shells were equally scarce; we only found on the sand the spoils of muscles, lepas, periwinkles, and purple-fish.

At length, on the morning of the 27th, having left on shore various medals, and a bottle with an inscription, containing the date of our arrival; and the wind having changed to the southward, I set sail, and ranged along the coast at the distance of two miles from the shore, the depth of water being always forty fathoms over a bottom of sand and mud, and close enough in shore to distinguish the mouth

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mouth of the smallest rivulet. We made 50 leagues in this manner, in the finest weather seamen could desire. On the 29th, the wind changing to the northward at eleven o'clock at night, I was obliged to tack to the eastward, and thus to gain the offing. Our latitude was then $46^{\circ} 50'$ N. and we again stood in for the land the next day. Although the weather was very foggy, yet the horizon extending three leagues from us, we surveyed the same coast we had perceived the evening before in the north, and which now bore west from us. It was lower and more divided by small hills, and the depth of water, at two leagues from the shore, was only 30 fathoms over a bottom of rock. We remained in a dead calm on this species of bank, and took more than 80 cod. A light breeze from the south enabled us to haul off from it during the night, and at day-light we again saw the land four leagues distant. It seemed only to extend to the N. N. W., but the fog concealed its more northerly points. We continued ranging along very near the coast, whose direction was N. by E. On the 1st of July, a thick fog having enveloped us when so near the land, as to hear the surf breaking on the shore, I made the signal to anchor, the depth of water being 30 fathoms over a bottom of mud and broken shells. The weather was so foggy till the 4th, that it was impossible for us to take any bearings, or to send a boat on shore, but we caught above 800 cod. I ordered the excess of our consumption to be salted and put in barrels. Our dredge also brought up a great quantity of oysters, of which the shells were so fine, that it seemed highly probable they might contain pearls, although we had only found two half formed. This circumstance adds probability to the relations of the Jesuits, who inform us, there is a pearl fishery at the mouth of several rivers of eastern Tartary: but we must suppose this fishery to be in the neighbourhood of Corea; for, farther north, the country is too

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thinly inhabited for that mode of employment; since, in running down two hundred leagues of this coast, often within gun-shot, and always at a small distance from the land, we neither perceived canoes nor houses; and we only saw, when on shore, the traces of a few hunters, who do not appear to have any dwelling in the places we visited.

On the 4th, at three in the morning, we had a fine interval of clear weather, when we took the bearings of the land as far as N. E. by N., and had abreast of us, bearing W. N. W., distant two miles, an extensive bay, into which a river 15 or 20 toises wide discharged itself. A boat was sent off from each frigate, under the command of Messrs. Vaujuas and Darbaud, to reconnoitre it. Messrs. de Monneron, la Martinière, Rollin, Bernizet, Collignon, the abbé Mongès, and Father Receveur, were on board. They easily effected a landing, and found the water gradually shoaling towards the shore. The face of the country is nearly similar to that of the bay of Ternai; and, though three degrees more to the northward, its productions, and the substances that compose its soil, are almost the same.

The traces of inhabitants were here much more recent. We saw branches of trees cut with a sharp instrument, on which the leaves still continued green. Two elk-skins extended with great skill on small pieces of wood, had been left by the side of a small hut, not large enough to lodge a family, but sufficient to afford shelter for two or three hunters. Perhaps it even then contained a few of those who had fled, through fear, to the woods. M. de Vaujuas was of opinion that he ought to take one of these skins; but left in exchange hatchets, and other instruments of iron, of an hundred times the value of the skin, which he sent to me. The report of this officer, and that of the naturalists, excited no desire to prolong my stay in this bay, which I named the bay of Suffren.

CHAP.

CHAP. XVIII.

WE CONTINUE OUR COURSE TO THE NORTHWARD—
 WE DESCRIBED A PEAK TO THE EASTWARD—WE PER-
 CEIVE THAT WE ARE SAILING IN A CHANNEL—
 WE SHAPE OUR COURSE TOWARDS THE ISLAND OF
 SEGALIE—WE PUT INTO LANGLE BAY—MANNERS
 AND CUSTOMS OF THE INHABITANTS—THEIR IN-
 FORMATION DETERMINES US TO CONTINUE OUR
 ROUTE TO THE NORTHWARD—WE RANGE ALONG
 THE COAST OF THE ISLAND—WE PUT INTO
 D'ESTAING BAY—WE DEPART FROM THENCE—WE
 FIND THAT THE CHANNEL BETWEEN THE ISLAND
 AND THE CONTINENT OF TARTARY IS OBSTRUCTED
 BY SAND-BANKS—WE ARRIVE IN THE BAY OF CAS-
 TRIES ON THE COAST OF TARTARY.

I GOT under way from the bay of Suffren, with a light breeze at N. E., which I hoped would enable me to gain a distance from the coast. This bay is situated, according to our observations, in $47^{\circ} 51'$ N. lat., and $137^{\circ} 25'$ E. long. During our departure we used the dredge several times, and took some oysters, to which their poulettes were attached, as well as some small bivalve shells, (such as are often found in a petrified state in Europe, and to which nothing analogous has been seen, except of late years on the coast of Provence), some large whelks, many sea hedge-hogs of the common sort, a great quantity of star-fish and holothurice, with some very small pieces of a beautiful coral.

The fog and the calm obliged us to anchor a league farther from the shore, in 44 fathoms water, over a bottom of sand and mud; where, though we continued to catch cod, this was but a poor compensation for the loss of time, during which the season was

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advancing too rapidly, considering our desire of entirely exploring this sea. At length on the 5th, notwithstanding the fog, the breeze having freshened from the S. W., I got under sail. While at anchor, we had, during a clear interval of about ten minutes, taken bearings of eight or ten leagues of coast to the N. E. by N. Thus we could advance, without inconvenience, seven or eight leagues to the N. E. by E., and I shaped my course to that point, sounding every half hour; for we could not see at a distance of two musket-shots. We sailed in this manner, in 50 fathoms water, till dusk. The wind then changed to N. E. blowing very fresh, with a heavy rain. The barometer fell to $27\frac{1}{2}$ inches, and we beat about with contrary winds the whole of the day, on the 6th of July, when our latitude, by observation, was 48° N., and our longitude $138^{\circ} 20'$ E.

At noon we had a clear interval, when we took the bearings of some summits of mountains which extended to the northward, but a fog concealed the lower part of the coast; and we perceived no point of land, although we were but three leagues off. The night was extremely fine, and we ran parallel with the coast by moon-light. Its direction was at first N. E., and afterwards N. N. E. We ranged along it at day-break, and hoped to arrive before night in the latitude of 50° N., the limit I had fixed for quitting the coast of Tartary, and returning towards Jessô and Oku-Jessô; being very certain, that if these had no real existence, we should at least fall in with the Kuriles as we advanced to the eastward. But at eight in the morning we got sight of an island which appeared very extensive, and formed with Tartary an opening of 30 degrees. We did not distinguish any point of land, and could only take the bearings of some summits of mountains, which extending as far as the south-east, indicated that we were already considerably advanced in the channel

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which separated it from the continent. Our latitude was, at that time, $48^{\circ} 35' N.$; and that of the Astrolabe, who had advanced two leagues a-head, $48^{\circ} 40'$. I at first believed this land to be the island of Segalien, of which the southernmost part had been placed by geographers two degrees too much to the northward: and I judged that if I steered my course up the channel, I should be forced to pursue it till it opened into the sea of Okhotsk, on account of the obstinacy of the south winds, which at this season incessantly prevail in these seas. This situation would have been an insuperable obstacle to my desire of fully exploring this sea, and after having drawn a most exact chart of the coast of Tartary, it only remained, in order to effect this plan, to range along the western side of the first island I should meet with, as far as the 44th degree. I therefore steered my course to the S. E.

The appearance of this land was very different from that of Tartary. We only perceived barren rocks, whose cavities still retained the snow. But we were at too great a distance to discover the low lands, which, like those of the continent, might be covered with trees and with verdure. The most elevated of these mountains, whose summit terminates like the chimney of a furnace, I named *Pic Lamanon*, on account of its volcanic form, and because the naturalist of that name has particularly directed his attention to the various volcanic productions.

The south winds obliged me to ply to windward with all sails set, in order to double the southern extremities of this new land, of which we had not yet perceived the limits. We had only found an opportunity, during a few minutes, to take the bearings of the summits of some mountains, a thick fog having enveloped us. But we got soundings three or four leagues from the coast of Tartary to the westward; and in running to the eastward, I tacked as soon

soon as we found forty-eight fathoms water. I was ignorant how far distant these soundings placed us from the new discovered island : but in the midst of this obscurity, and with an horizon of less than half a league, we took an observation of the latitude on the 9th of July, which was $48^{\circ} 15'$. The obstinacy of the southerly winds did not cease during the 9th and 10th, when they were accompanied with a fog so thick, that we could scarcely see a musket-shot from the ship. We in a manner felt our way in this channel, being certain that we had land from S. S. E. round by E. and N. to S. W. The new reflections to which this land bearing S. S. E. gave birth, almost induced me to believe, we were not in the channel of the island of Sagalien, to which no geographer has assigned so southerly a situation, but rather to the westward of Jessô, of which the Dutch had, in all probability, run down the eastern part; and that, as we had sailed very near the coast of Tartary, we had, without perceiving it, entered the gulph which Jessô forms perhaps with this part of Asia. It only remained for us to discover whether Jessô is an island or a peninsula, forming with Chinese Tartary the same figure as Kamtschatka with Russian Tartary. I waited with the greatest impatience for a clear interval, in order to pursue the course that must decide this question; and it took place in the afternoon of the 11th. It is only in these foggy seas that very extensive horizons present themselves, though very rarely, as if Nature were desirous, in a manner, to compensate by moments of the greatest clearness the profound and almost eternal obscurity which spreads over all these seas. The curtain rose at two in the afternoon, and we took bearings of the land from N. by E. to N. by W. The opening was but an angle of 22° and a half, and several of our company declared they saw summits of mountains which entirely closed it. This uncertainty of opinion rendered me very undecided

cided what plan to adopt. It would have been extremely inconvenient to bear away 20 or 30 leagues to the northward, if we were really within sight of the top of the gulph, because the season was advancing, and we could not expect to beat up these 20 leagues against the south wind in less than eight or ten days, since we had advanced but 12 leagues in the course of the five days we had been plying to windward in this channel. On the other hand, the object of our voyage was not accomplished, if we missed the strait that divides Jesso from Tartary. I therefore thought it better to put in, and endeavour to procure information from the natives. On the 11th and 12th the weather was clear, in consequence of a very strong breeze, and we were obliged to reef our sails. We approached within a league of the island, whose coast ran due north and south. I was desirous of finding a bight, where our vessels might be sheltered, but the coast did not offer the smallest inlet, and the sea was as high half a league off the shore as in the offing. Thus although we had a sandy bottom, which was so level as only to vary from 18 to 30 fathoms in the space of six leagues, I was obliged to continue to beat up against the south wind with all sails set.

The distance from whence I had first descried this coast led me into an error, but when I approached nearer, I found it as well wooded as that of Tartary. At length, in the evening of the 12th July, the breeze from the southward having considerably abated, I neared the land, and dropped anchor in 14 fathoms water in a bottom of sand and mud, two miles from a small creek into which a river discharged itself. M. de Langle who had anchored an hour before me, came immediately on board. He had already hoisted out his jolly and long boats, and proposed landing before night, to reconnoitre the country, and discover whether we could derive any information from the inhabitants. We perceived by the aid of our glasses
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some huts, and two of the inhabitants who seemed to fly towards the woods. I accepted the proposal of M. de Langle, and requested him to take with him M. Boutin and the abbé Mongès, and when we had anchored and furled our sails, and our boats hoisted out, I manned the Biscay yawl, putting it under the command of M. Clénard, accompanied by Messrs. Duché, Prevost and Collignon, and gave them orders to join M. de Langle who had already reached the shore. They found the two only huts on this bay abandoned, though very recently, for the fire was still alight. None of the furniture had been removed, and there was a litter of puppies whose eyes were not yet opened, while the mother, who was heard barking in the wood, indicated that the proprietors of these dwellings were not far distant. M. de Langle left some hatchets, various utensils of iron, some beads, and in general, whatever he thought most useful and agreeable to these Islanders, in the persuasion, that as soon as he had re-embarked the inhabitants would return, and that our presents would convince them, we were not enemies. He also had the seine hauled, and took at twice, more salmon than would serve the crews a week. At the moment when he was going to re-embark, he saw a canoe with seven men come ashore, who did not appear the least alarmed at our numbers. They ran their little bark aground upon the sand, and sat upon mats in the middle of our sailors, with an air of confidence which prejudiced them much in their favour. Among the number were two old men with long white beards, clothed with a stuff made of the bark of trees, similar to the cottons for negroes in Madagascar: two of these Islanders had habits of quilted nankeen, and the form of their dress differed but little from that of the Chinese. Others had only a long robe entirely closed by means of a girdle, and some small buttons which rendered drawers unnecessary. Their heads were uncovered, and two or three
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of them wore a fillet of bear-skin. They had the crown of the head and faces shaved, but behind, all the hair remained to the length of eight or ten inches, though in a different manner from that of the Chinese, who only have a round tuft of hair which they call *pentsec*. They had all boots of seal's-skin with a foot resembling that of the Chinese, manufactured with the greatest art. Their arms were pikes and bows, and arrows tipped with iron. The oldest of these Islanders to whom the others shewed the greatest regard, had very weak eyes, and wore on his head a shade to defend him from the light of the sun. The manners of these inhabitants were grave, noble, and affectionate. M. de Langle presented them the remainder of the articles he had brought with him, and gave them to understand by signs, that the night obliged him to return on board, but that he was very desirous of meeting them again the next day, in order to bring them new presents. They signified, in reply, that they should pass the night in the neighbourhood, and would be punctual to the rendezvous.

We concluded that these were proprietors of a magazine of fish we had met with, on the banks of the small river, and which were raised upon stakes four or five feet above the ground. M. de Langle when he approached it, had the same respect for it as for the deserted cottage. He found there salmon and herrings, dried and smoked, bladders filled with oil, and skins of salmon, which were as thin as parchment. This magazine was too considerable for the subsistence of a single family, and he concluded that these people trafficked in these articles. Our boats did not return on board till near eleven at night, and their report excited my most lively curiosity. I waited with impatience the return of day, and was on shore with the yawl and long-boat before sun-rise. The islanders arrived in the creek soon afterwards.

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They came from the north, where we had judged their village to be situated, and were soon followed by a second canoe. Their companies amounted to 21, among whom were the proprietors of the huts, whose confidence the articles left by M. de Langle had restored. But they brought no women, and we have reason to think they are extremely jealous of them. We heard dogs barking in the woods, and these animals had probably remained with the women. Our hunters were desirous of entering the forest but the inhabitants urged us in the most pressing manner, not to approach the spot from whence we heard the barking, and as I intended to make important enquiries of them, I was desirous to inspire them with confidence, and therefore gave orders not to oppose them in any thing.

M. de Langle with almost all his officers arrived presently after us, and before our conversation with the inhabitants commenced. It was preceded by presents of various kinds. They seemed, however, to put no value on any but those which were useful. Iron and stuffs prevailed above every thing. They knew the metals as well as ourselves, and preferred silver to copper, copper to iron, &c. They were very poor, only three or four of them had silver earrings, adorned with blue beads, exactly similar to those we had found in the tomb at the bay of Ternai, and which I had taken for bracelets. Their other little ornaments were copper, like those in the same tomb. Their pipes, and steels for lighting them, appeared to be Chinese, or Japanese, and the former were of tutenag perfectly well executed. They gave us to understand, by pointing with their hand to the west, that the blue nankeen with which some of them were clothed, their beads, and their steels, came from the country of the Mantchous, and they pronounced that name precisely as we do. Observing afterwards, that each of us held a paper and pencil in

in his hand, to form a vocabulary of their language, they immediately guessed our intention, and anticipating our questions, presented the various objects, added the name of the country, and were sufficiently complaisant to repeat them four or five times, till we had learnt their pronunciation. The facility with which they had guessed our intention, leads me to conclude, that the art of writing is known to them, and one of these Islanders who, as we shall see traced the outlines of the country, held a pencil in the same manner as the Chinese. They seemed to have a great desire for our hatchets and stoffs, and even ventured to ask for them. But they were equally scrupulous with ourselves, in not accepting any thing but what we gave them. It was evident, their ideas of theft were in no respect different from our own, and I should not have hesitated to have trusted them with guarding our property. Their scrupulousness in this respect, extended to the not taking up from the beach any of the salmon we had caught, although they laid there by thousands: for our success had been equally abundant with that of the preceding evening, and we were obliged to press them several times to take as many as they wished.

We at last succeeded in making them understand that we wished them to describe the figure of their country, and that of the Mantchous. One of the old men then rose, and traced with the end of his pike the coast of Tartary to the west, running nearly north and south. Opposite to this, in the same direction to the eastward, he represented his own island; and placing his hand upon his breast, he gave us to understand, this was his own country. He had left a strait between it and Tartary, and turning towards our vessels, which he perceived from the shore, he indicated, by another line, that we might pass that way. To the south of this island he represented another, and left a strait, signifying this
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to be another course for our vessels. He discovered wonderful sagacity in guessing our questions, but was even exceeded by another islander, about thirty years of age, who perceiving that the figures on the sand were soon effaced, took one of our pencils and a piece of paper, and delineated his own island, which he called Tehoka, and designated by a line the little river on whose bank we stood, and which he placed at two thirds of the length of the island from north to south. He afterwards laid down the country of the Mantchous, leaving, like the old man, a strait at the top of the bight; and, to our great surprize, he added the river Segalien, whose name these islanders pronounced like ourselves. He placed the mouth of this river a little to the southward of the northernmost point of his island, and marked by several strokes, the number of days necessary for a canoe to reach it from the place where we stood; but as their canoes never go above a pistol-shot from the shore, and follow the windings of the little creeks, we judged they did not advance in a strait line above nine leagues per day; for as the coast admits of landing every where, they go ashore to dress their provisions and take their meals, and it is probable they make frequent rests. We therefore estimated our distance from the extremity of the island at sixty-three leagues at most. The same islander repeated, what we had been already told, that they procured nankeens and other articles of commerce by their communication with the banks of the river Segalien, and he denoted by similar marks, the number of days employed by a canoe in ascending this river to the place with which they traded. All the other islanders were present at this conversation, and signified by their gestures their approbation of their countryman's discovery. We were now desirous of knowing if this strait was very broad, and endeavoured to make him understand our idea. He caught our meaning, and placing his

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two hands perpendicular and parallel, at the distance of two or three inches from each other, gave us to understand, that he meant thus to describe the width of the small river where we got our water. By widening them, he signified the width of the river Segalien, and in the same manner the much greater width of the strait which separated his country from Tartary. We now wished to know its depth of water. We led him to the edge of the river, which was but ten paces from us, and plunged the end of a pike in. He seemed to understand us, and placed one hand over the other, at a distance of five or six inches. We thought he meant thus to signify the depth of the river Segalien. He then extended his arms to their full length, as if to communicate the depth of the strait. It now remained to ascertain whether he had been describing absolute or relative depths. In the first case the strait was but a fathom deep, and these people, who had never approached our vessels, might suppose three or four feet of water were sufficient for us, since three or four inches were enough for their canoes; but it was impossible for us to gain farther information in this respect.

M. de Langle and myself thought that, in all events, it was of the greatest importance to discover whether the island we were ranging along was that to which geographers have given the name of Segalien, without suspecting its extent to the southward; and I gave orders to prepare every thing on board for both ships sailing the next day. I called the bay where we lay at anchor *Baie de Langle*, from that captain, who discovered it, and first landed there.

We employed the rest of the day in exploring the country and visiting its inhabitants. We had not met with any, since our departure from France, who more strongly excited our curiosity and admiration. We knew that the most numerous nations, and perhaps those most anciently civilized, inhabit

the neighbouring countries; but it does not appear they ever conquered these islands, for there was nothing to tempt their cupidity, and it was totally contrary to our ideas to find among a people of hunters and fishermen, who do not cultivate a single production of the earth, and who are destitute of flocks, manners generally more gentle, more ferocious, and perhaps a more comprehensive intellect, than in any nation of Europe. Assuredly the knowledge of the informed classes of Europeans much exceeds that of the twenty-one islanders with whom we communicated in Langle Bay; but among the inhabitants of these islands their knowledge is more generally disseminated than among the lower classes of European nations. Here every one seemed to have received the same education. We no longer observed the stupid stare of the Indians of Port des Français, though our arts and manufactures attracted the attention of the inhabitants of Langle Bay, who turned and examined these manufactures every way, conversed of them among themselves, and endeavoured to discover by what means they had been fabricated. The use of the shuttle is known to them. I brought away a machine with which they make cloth entirely similar to ours; but the thread is made of the bark of willow, which is very common in this island, and seemed to differ very little from that of France. Although they do not cultivate the earth, they profit by its spontaneous productions with the most active intelligence. We found in their huts many roots of a species of lilly, which our botanists recognized to be the yellow lilly, or *sarrana* of Kamtschatka, which they dry, for their food in winter. They had also great quantities of garlic and angelica, which are found on the skirts of their woods. Our short stay did not permit us to investigate whether they have a form of government, nor can we hazard a conjecture on that subject,

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ject, though we cannot doubt but they have great respect and consideration for their old men, and that their manners are very gentle. Were they shepherds, and had they numerous flocks, I should form no other idea of the manners and customs of patriarchs. They are in general well made, of a strong constitution, an agreeable countenance, and remarkably hairy. Their stature is low: I did not observe one who exceeded five feet five inches French, and many were less than five feet. They permitted our artists to draw them, but stedfastly resisted the desire of M. Rollin, our surgeon, who wished to take the dimensions of their bodies. They thought it perhaps some magical operation; for we know from travellers that this idea of magic is extremely general in China and Tartary; and that they had brought several missionaries before their tribunals, accused of being magicians, on account of the imposition of hands, practised by them in baptizing infants. This refusal, and their persisting in concealing their women, and removing them to a distance, are the only reproaches we have to make against them. We can declare, that the inhabitants of this island form a civilized people, though so poor, that it will be long before they have to fear the ambition of conquerors, or the cupidity of merchants. A little oil and dry fish are but trifling objects of exportation. We only traded for two martens' skins. We saw bears' skins, and those of seals, cut in pieces for articles of dress; but these were far from numerous. The furs of these islands would be but very trifling objects of commerce. We found some round pieces of coal lying on the shore, but not a single stone that contained either gold, iron, or copper. I am very much inclined to think they have no mines in their mountains. All the silver trinkets of these twenty-one islanders did not amount to two ounces; and a medal with a silver chain which

I put round the neck of an old man, appeared to them of inestimable value. Each of the inhabitants wore on his thumb a large thick ring of ivory, horn, or lead. They let their nails grow like the Chinese, and use the same salutation, throwing themselves on their knees, and then prostrating themselves on the earth. Like them they sit on mats, and eat with little sticks. But if they have a common origin with the Chinese and the Tartars, their separation from them is very ancient, for they have no resemblance to those nations in their person, and very little in their manners.

The Chinese we had on board, did not understand a single word of the language of these islanders, though they were perfectly acquainted with that of two Mantchou Tartars who had come from the continent a fortnight or three weeks before, perhaps in order to make some purchase of fish.

We did not meet with them till the afternoon. They conversed, by word of mouth, with one of our Chinese, who well understood the Tartar tongue. They related the same particulars of the geography of the country, only changing the names, because in all probability each language has its own. The dress of these Tartars was grey nankeen, like those of the coulis or porters at Macao. Their hat was pointed, and made of bark, they had the tuft of hair or *pentsec* of the Chinese, but their countenance and manners were much less agreeable than those of the inhabitants of the island. They said they lived at a distance of eight days journey, on the upper part of the river Segalien. All these circumstances, added to what we had seen on the coast of Tartary, very near to which we had sailed, led us to think the shores of this part of Asia were almost destitute of inhabitants, from the 42d degree, or the confines of Corea, to the river Segalien; that mountains, perhaps inaccessible, separate this maritime country from the rest of Tartary,

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Tartary, and that they could only arrive there by sea, and by thence ascending some rivers; although we had not perceived one stream of any magnitude.* The huts of these islanders are built with skill, and every precaution is taken against cold. They are of wood, covered with the bark of birch, and have a roof of wood, thatched with dried straw, arranged like the cottages of our peasants. The door is very low, and placed in the gable end, the fire in the middle, under an opening in the roof for the smoke. Little benches or planks, eight or ten inches high, run round them, and the inside is lined with mats. The hut here described, was situated in the middle of a wood of roses, 100 paces from the sea. These shrubs were in flower, and exhaled a delicious fragrance, but could not compensate the smell of the fish and oil, which would have overpowered all the perfumes of Arabia. We were desirous to know whether the olfactory sensations, like those of the palate, depend on habit, I therefore gave one of the old men a flask of the sweetest scented water. When putting it to his nose, he shewed the same repugnance to it as we had felt for his oil. He had his pipe constantly in his mouth, and his tobacco was of a very good quality and in large leaves. If I rightly understood them, they procured it from Tartary, but they clearly explained that their pipes came from the island to the southward, by which, doubtless, they meant Japan. Our example could not induce them to take snuff; and it would have been rendering them a disservice to have taught them a new want. I was astonished to hear among the words of their language, of which I have inserted

* These Islanders never gave us to understand they carried on any trade with the coast of Tartary, which, however, they were acquainted with, since they delineated it, but only with a people who dwell at a distance of eight days journey on the upper part of the Segalien.

a vocabulary at the end of Chap. XXI. the word *ship* for a vessel, and *too, tree*, for the numbers two and three. Do not these English expressions demonstrate that a few similar words are not sufficient to prove a common origin?*

On the 14th of July, at day break, I made the signal for getting under way, with a southerly wind and hazy weather, which soon changed in a very thick fog. Till the 19th there was not the smallest alteration. I shaped my course N. W. towards the coast of Tartary, and when, according to our reckoning, we were on the spot from whence we had discovered Lamanon Peak, we hauled our wind, and plied to windward, under easy sail, in the channel, waiting till the obscurity cleared up, which I do not think can be equalled by that of any other sea. At length it cleared up for a moment, and in the morning of the 19th, we saw the land of the island, extending from N. E. by N. to E. S. E. but it was still so covered with vapours, that it was impossible for us to recognize any of the points which we had set by the compass the precedings days. I stood on to approach it, but we soon lost sight of it. Guided, however, by our soundings, we continued to range along it till two o'clock in the afternoon, when we anchored two miles from the shore, to the westward of a very good bay, in twenty fathoms water, over a bottom of small gravel. At four the fog dis-

* On the contrary, these words would give the King of Great Britain a title to the sovereignty of these islands and seas, at least, equally authentic with that under which some princes have claimed a right to territories many thousand miles from their lawful dominions. To be serious, however, these words may furnish matter of speculation for the geographer, the politician, and the philosopher.

It is necessary to remark, that the French writer has spelt them so as to produce these English sounds in a French mouth: thus, *chip, too, tri*. Perhaps the natives pronounced the *th* in three as we do. But a French ear is as little adapted to seize, as their other organs are to pronounce, the sound.—*Translator's note.*

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perfed, and we took the bearings of the land aftern of us N. to the E. by E. I gave to this bay, the beft in which we had anchored fince our departure from Manila, the name of *Baie d'Esfaing*. Its latitude is $48^{\circ} 59'$ north, its longitude $140^{\circ} 32'$ eaft. Our boats landed there at four in the afternoon, near ten or twelve huts, placed without order, at a confiderable diftance from each other, and about one hundred paces from the fea. They were rather more confiderable than thofe I have defcribed, and built with the fame materials, but were divided into two apartments; the fartheft containing all their little houfehold furniture, the fire-place, and the bench that runs around, while that next the door was entirely empty, and feemed appropriated to receiving vifits: ftrangers apparently not being admitted into the prefence of the women. Some of our officers, however, met two of them, who had concealed themfelves in the grafs. When our boats landed in the creek the women were terrified, and fcreamed, as if in fear of being devoured, although under the protection of an iflander, who was conducting them homewards, and endeavoured to quiet their alarm. M. Blondela had time to take a drawing of them, and was particularly happy in representing their countenance, which is rather extraordinary but pleafing. Their eyes are fmall, their lips thick, and the upper part painted or tattoood with blue, for it was not poffible to afcertain which was the fact. Their legs were naked, but a long linen night-gown covered them; and as they were bathed in the dew of the grafs, this night gown clung to their bodies, and permitted the painter to describe their exact fhape, which, however, was inelegant. Their hair was of its full length, and the top of their head was not fhaved like that of the men.

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collected round four canoes laden with smoked fish ; they were helping to launch them into the water, and he learned that the 24 men who formed the crews were Mantchous, and that they had come from the banks of the Segalien to buy fish. He held a long conversation with them by means of our Chinese, to whom they gave the best reception. They said, like our first geographical instructors of Langle Bay, that the land we were ranging along was an island, and gave it the same name, adding, that we were five days of their navigation from its extremity ; but that, with a fair wind, we might make this run in two, and sleep each night on shore. Thus every thing we had there learned was confirmed in this bay, though expressed with less intelligence by the Chinese, who served as our interpreters. M. de Langle also observed, in a corner of the island, a kind of circus formed with 15 or 20 stakes, each of them adorned with the head of a bear ; the bones of those animals lying dispersed in the vicinity. As the inhabitants have no fire arms, but engage the bears front to front, and their arrows can only wound : this circus seemed destined to commemorate their exploits, and the 20 heads of bears it exhibited, to denote the victories they had gained ten years since, if we might judge by the state of decomposition of the majority of them. The productions and component substances of the soil are exactly similar to those of Langle Bay. Salmon was very common there, and every hut had its magazine. We discovered that these people consume the head, the tail, and the back-bone, and cure and smoke the two flanks for sale to the Mantchous, reserving for themselves nothing but the flavour, which infects their houses, their furniture, their clothes, and even the grass that surrounds their villages. Our boats at length put off at eight o'clock in the evening, after we had loaded the Tartars and Islanders with presents.

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sents. They returned on board at three quarters past eight, and I gave orders to prepare for sailing the next day.

The 20th was a very fine day, and we made the best observations, both of latitude and of distances between the sun and moon, by which we corrected our reckoning for the last six days, since our departure from Langle Bay, situated in $47^{\circ} 49'$ N. lat. and $140^{\circ} 20'$ E. long., which last differs but three minutes from that of d'Estaing Bay. The direction of the western coast of this island from $47^{\circ} 30'$, where we had seen Langle Bay to 52° , being due north and south, we ranged along it at something less than a league distance; and at seven in the evening, a thick fog having surrounded us, we anchored in 37 fathoms water over a bottom of mud and small pebbles. The coast was much steeper and more mountainous than on the south side. But we perceived neither fire nor habitation; and, as night approached, we did not send a boat a-shore. However we took eight or ten cod for the first time since we had quitted the coast of Tartary, from whence we concluded, we were near that continent, of which we had lost sight from the 49th degree of latitude.

Being obliged to follow one of these coasts, I preferred that of the island, in order not to miss the strait, if there existed one to the eastward. This required minute attention on account of the fogs, which only afforded us very short intervals of clear weather. Thus I kept the land close aboard, never being farther than two leagues distance, between Langle Bay and the extremity of the channel. My conjectures on the vicinity of the coast of Tartary were so well founded, that as soon as our view became a little more extensive, we had a perfect view of it. The channel became narrower in 50° , and was there only 12 or 13 leagues wide.

On the 22d, at night, I anchored a league from the land,

land, in 37 fathoms water, over a muddy bottom. We had a-breast of us a little river, and, three leagues to the northward, a very remarkable peak, whose base is at the water's edge, and its summit, from whatever side it is viewed, preserves the most regular form. It is covered with trees and verdure to its top. I gave it the name of *Pic la Martinière*, because it offered a fine field for the botanical researches to which that gentleman has devoted himself.

Not having perceived any habitations, during the time we ranged along the coast of the island, from d'Estaing Bay, I was desirous of clearing up my doubts on this subject. I therefore manned four boats belonging to both ships, under the command of M. de Clonard, second captain, and ordered him to reconnoitre the creek, into which a little river, of which we perceived the channel, discharged itself. He returned at eight in the evening, and, to my great surprize, had all his boats full of salmon, although the crews had neither lines nor nets. This officer informed me he had landed at the mouth of a rivulet not more than 24 feet wide, and a foot deep, which he found so full of salmon, that its bottom was entirely covered with them, and our sailors had killed 1200 in an hour with their sticks. On shore he had only found two or three deserted sheltering places, which he supposed to have been erected by some Mantchou Tartars, who probably had come from the continent, according to their custom, to trade with the southernmost part of the island. Vegetation was still more vigorous here than in the bays where we had landed. The trees were of a large size, and celery and water-cresses grew on the banks of the river. This was the first time we had met with the latter since our departure from Manilla. They might also have gathered enough of juniper-berries to have filled several sacks, but we gave the preference to herbs and fish. Our botanists made an ample collection of rare plants,
and

and our mineralogists collected many crystals of spar, and other curious stones. But they neither found marcasites nor pyrites: nothing, in short, that indicated any metallic mine. Firs and willows were much more numerous than oak, maple, birch, or medlars; and had other travellers landed a month later, they would have found a plentiful crop of gooseberries, strawberries, and raspberries, for they were already in flower.

While the crews of our boats were on shore collecting this abundant harvest, we were employed in catching cod, and a few hours furnished us with fresh provisions for a week. I gave this river the name of *Ruisseau de Saumon*, or Salmon River; and got under way at day-break. We continued ranging close along this island, which seemed to have no end to the northward, although every point that stretched out a little to sea flattered me with that hope. On the 23d, we observed in $50^{\circ} 54'$ N. lat., and our longitude had scarcely varied from Langle Bay. In this latitude we took the bearings of a very good bay, the only one we had seen in running along this island, that offered a secure shelter against the winds from the channel. A few habitations appeared dispersed upon the shore near a ravine, which indicated the bed of a river a little more considerable than those we had yet seen. I did not think proper more particularly to reconnoitre this bay, which I named *Baie de la Jonquière*. However I stood across it, and a league from the shore the depth of water was 35 fathoms over a muddy bottom; but I was so pressed for time, and the clear weather we then enjoyed so rare and so precious to us, that I thought it my duty to employ it in advancing to the northward. Since we had got into the latitude of 50° N., I had entirely recurred to my former opinion, and could no longer doubt that the island we were ranging along from 47° , and which, according to the information of its inhabitants, must extend much farther

ther to the southward, was the island of Segalien, whose northernmost point has been determined by the Russians in 54° , and which forms one of the longest islands in the world, in a direction from north to south. Thus the pretended strait of Tessoy could only be that which separates the island of Segalien from Tартary nearly in 52° . I was too far advanced not to be desirous to reconnoitre the strait, and to know whether it was navigable. I began, however, to fear it was not, because we shoaled our water very suddenly as we advanced to the northward, and the land of Segalien was little more than an assemblage of swampy downs, almost level with the water, and resembling sand-banks.

In the evening of the 23d, I anchored three leagues from the land, in 24 fathoms water, over a muddy bottom. I had found the same soundings two leagues farther to the eastward, and at one league from the shore, and from sun set to the moment when we anchored, I had made two leagues to the westward, exactly at right angles with the direction of the coast, in order to discover whether the depth increased in proportion as we departed from Segalien; but it was constantly the same, and I began to suspect that the declivity was from north to south, in the direction of the channel, nearly in the manner of a river, whose depth diminishes towards its source.

On the 24th at day break we got under sail, shaping our course to the N. W. We shoaled our water to eighteen fathoms in three hours. I then gave orders to steer to west, and we carried with us precisely the same depth of water. I crossed the channel twice east and west in order to satisfy myself whether there was any space of deeper water, and thus to find the passage if there was one. This was the only reasonable plan in our present circumstances, for the water shoaled so rapidly when our course was to the northward, that for every league in this direction the
bottom

bottom rose three fathoms. - Thus supposing a gradual decrease of depth, we were but six leagues from the top of the gulph, and yet we did not perceive any current. This stagnation of the water seemed to prove there was no channel, and was the certain cause of so equal a declivity. We anchored in the evening of the 26th, on the coast of Tartary, and the next day at noon, the fog having dispersed, I ran to the N. N. E., towards the middle of the channel, in order completely to establish this point of geography, which had cost us so much labour and fatigue. In this manner we sailed with a perfect view of both coasts; the depth, as I had expected, diminished three fathoms every league, and after having advanced four leagues, we anchored in nine fathoms over a sandy bottom. The wind had settled to the southward so constantly, that for near a month they had not varied 20 degrees, and we exposed ourselves, by thus running before the wind towards the top of the gulph, to be embayed, and consequently to be obliged to wait the return of the monsoons to get out. But this was not the greatest inconvenience we apprehended. The danger of driving from our anchors with a sea as high as we ever witnessed on a European coast when there is no shelter, was of much greater importance. These southerly winds, whose source is in the seas of China, pass without interruption to the top of the gulph of Segalien. They there violently agitate the sea, and blow more stedfastly than the trade winds between the tropics. We were now so far advanced that we were desirous of exploring the extremity of this channel; but unfortunately the weather had become extremely uncertain, and the agitation of the sea continually increased. However we hoisted out our boats to sound around us. M. Boutin had orders to go towards the S. E., and M. de Vaujuas towards the north, with an express injunction not to expose themselves to the

the danger of not returning on board. These orders could only be confided to officers of the greatest prudence, because the sea growing heavier, and the wind increasing, might oblige us to get under way for the security of our ships. I therefore gave orders to these officers not to risk, on any account whatever, the safety of our ships by waiting for them, nor their own, should circumstances unavoidably compel us to get under sail.

My orders were executed with the greatest punctuality. M. Boutin presently returned, and M. Vaujuas made a league to the northward, where he found the depth of water six fathoms, and advanced to the utmost distance which the state of the sea and the weather permitted him to sound*. He left us at seven, and did not return till midnight. The sea being then very high, and remembering the misfortune we had experienced in Port des Français, I began to feel the greatest uneasiness. But his return seemed to compensate the very bad situation of our vessels, and at break of day we were obliged to get under sail. The sea was so heavy that we were four hours in weighing our anchor: the messenger and a purchase snapped, the capstan was broken, and by this event three men were badly wounded. We were then obliged to carry as much sail as the masts could bear, though it blew very strong. Fortunately some slight variation from S. to S. S. W. and S. S. E. favoured us, and we made five leagues in 24 hours.

On the 28th at night, the fog being dispersed, we found ourselves on the coast of Tartary, at the open-

* It is extremely probable that the straits of Segalien has been formerly navigable for ships, but every thing induces me to think that it will soon be dry, and that island become a peninsula. This change will take place either from the immense accumulation produced by the river Segalien, which through a course of 500 leagues receives other considerable rivers, or by the situation of its mouth almost at the narrowest point of a long channel: a situation extremely favourable to the forming of land.—*French Editor.*

ing of a bay which appeared to be very deep, and offered a safe and commodious anchorage. We were then entirely destitute of wood, and had very little water: I therefore determined to put in, and made a signal to the *Astrolabe* to go a-head and sound. We anchored at the northernmost point of this bay, at five in the evening, in eleven fathoms water, over a muddy bottom. M. de Langle, having immediately hoisted out his boat, sounded this roadstead himself, and informed me that it offered the best possible shelter behind four islands, which defend it from the sea breezes. He had landed at a Tartar village, where he had met with a very good reception; and had discovered a watering place, where the most limpid stream might fall into our boats; and these islands, from which the good anchoring place could not be farther than three cables' length, were covered with wood. In consequence of M. de Langle's report, I gave orders to prepare for going to the top of the bay at day-break, and we anchored there at eight in the morning, in six fathoms water, over a muddy bottom. I named this bay, *Baie de Castries*.

CHAP. XIX.

WE PUT INTO THE BAY OF CASTRIES—DESCRIPTION OF THAT BAY AND OF A TARTAR VILLAGE—MANNERS AND CUSTOMS OF THE INHABITANTS—THEIR RESPECT FOR TOMBS, AND FOR PROPERTY—OUR PERFECT CONFIDENCE IN THEIR PROBITY—THEIR PARENTAL AFFECTION TO THEIR CHILDREN—THEIR STRICT UNION AMONG THEMSELVES—FOUR FOREIGN CANOES SEEN IN THIS BAY—GEOGRAPHICAL INFORMATION OBTAINED FROM THEIR CREWS—PRODUCTIONS OF THE BAY OF CASTRIES—ITS QUADRUPEDS, BIRDS, FOSSILS AND PLANTS.

THE impossibility we discovered of sailing out to the north of the island of Segalien, opened to us a new order of events, and it was now very doubtful whether we could this year arrive at Kamtschatka.

The Bay of Castries, where we had just anchored, is situated at the top of a gulph about 200 leagues distant from the Strait of Sangaar, which was the only passage by which we could be certain of quitting the sea of Japan. The southerly winds were more steady, more constant, and more obstinate than in the seas of China, from whence they proceeded, because, being confined between two lands, their greatest variation could not exceed two points to the eastward or westward. When we had a breeze at all fresh, the sea rose to an alarming height, very dangerous to our masts; and our ships were not sufficiently good sailers to afford a hope of gaining 200 leagues to windward before the end of the Summer, in so narrow a channel, where the almost continual fogs rendered plying to windward extremely difficult; yet the only alternative that remained was to attempt

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attempt it, unless we waited for the northern monsoon, which might be retarded till November. I did not bestow a moment's consideration on the latter plan. I thought, on the contrary, that we ought to redouble our activity, by endeavouring to supply as speedily as possible our want of wood and water, and I therefore announced that we should not stay above five days. As soon as we were moored, the boats and long-boats of both ships were appointed by M. de Langle and myself to separate duties, which were to suffer no change during our stay. The long-boat got in our water, the barge our wood, and the jolly-boats were appropriated to Messrs. Blondela Bellegarde, Mouton, Bernizet, and Prevost junior, who had orders to draw the plan of this bay. Our small yawls, which drew but little water, were employed in fishing for salmon, in a small river where they abounded; and, lastly, our Biscay yawls served M. de Langle and myself to superintend our different operations, and to convey us, together with the naturalists, to the Tartar village, to the different islands, and, in general, to every object which required attention. The first and most important was to ascertain the rate of our time-keepers; and our sails were scarcely furled, when Messrs. Dagelet, Lauriston, and Darbaud, had already set up their instruments in an island at a very small distance from our ships, to which I gave the name of *Isle de l'Observatoire*. It was also to furnish our carpenters with wood, of which we were entirely destitute. A graduated rod was fixed in the water, at the foot of the observatory, to determine the rise of the tide, and the quadrant and pendulum were arranged with an activity worthy of a better success. Astronomical observations were pursued without interruption, for the short time I had announced did not admit of a moment's repose. The morning and the afternoon

were employed on equal altitudes of the sun, and the night in taking the altitude of the stars.

The comparison of the rate of our time-keepers had already commenced, and No. 19 gave us but little uneasiness, because its results, compared with those of our lunar observations, had always been the same, or, at least, did not exceed the errors to which those instruments are always liable. Not so No. 18, which was on board the *Astrolabe*. It had varied in an irregular manner, and M. de Langle, as well as M. Lauriston, knew not what daily rate to assign it. The awkwardness of a carpenter now destroyed all our hopes. He felled a tree near the astronomical tent, which broke the glass of the quadrant, deranged the pendulum of comparison, and almost annihilated the labours of the two preceding days. Their result fixed the latitude of our anchoring place, in $51^{\circ} 29'$ North, and its longitude $139^{\circ} 41'$ East, according to No. 19, allowing for its daily loss of 12 seconds, as it had been established at Cavita. It was calculated to be high water at the full and change of the moon at 10 o'clock, its greatest rise five feet eight inches: and the drift of the current, less than half a mile. Our astronomers, limited by this event to mere observations of curiosity, accompanied us on the two last days in our various excursions. The bay of Castries alone, of all those we visited on the coast of Tartary, deserves that name. It affords a secure asylum against bad weather, and it would even be possible to winter there. The bottom is muddy, and shoals gradually from 12 fathoms to five in approaching the shore, from which the breakers extend to three cables' length, so that it is very difficult to land, even in a boat, when the tide is low. Besides this, they have to contend with sea-weeds among which there are but two or three feet of water, and which oppose an invincible resistance to the exertions of the boats crews. No sea is more fertile in
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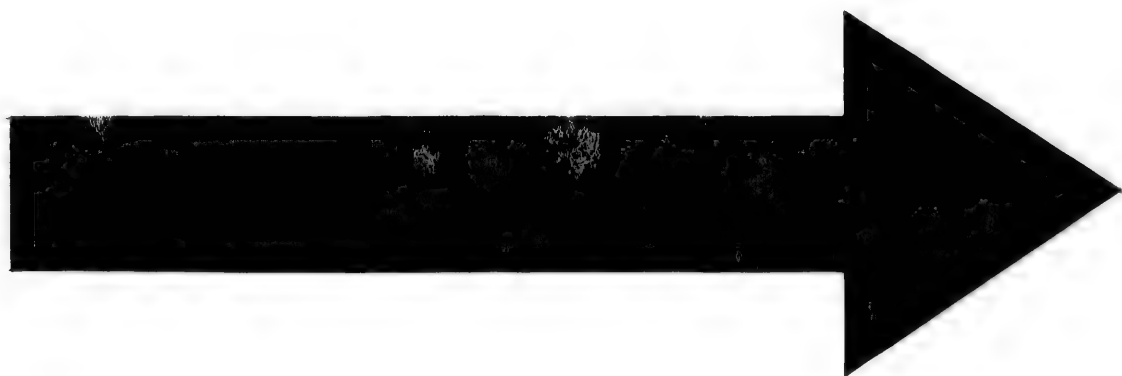


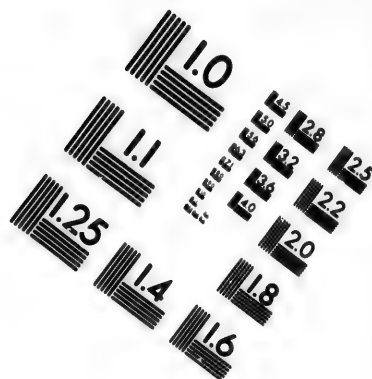
different species of *fuci* *, and the vegetation of our finest meadows does not exhibit a more beautiful velvet, nor a livelier verdure. A very great bight on which stands the Tartar village, and which we supposed sufficiently deep to receive our ships, because it was high water when we anchored at the top of the bay, became a few hours afterwards a field of marine plants, and vast quantities of salmon from a rivulet which disengaged itself among these weeds, leaped from the surface, and we took above 2000 in a day.

The inhabitants, whose most abundant and most certain subsistence these fish supply, beheld our success without uneasiness, because, no doubt they were confident their quantity was inexhaustible. We landed close to their village the day after our arrival in the bay. M. de Langle had preceded us, and his presents procured us a friendly reception.

It is impossible to find in any part of the world a community of worthier people. Their chief or oldest inhabitant, together with some of his neighbours, came to receive us on the shore. He saluted us by prostrating himself on the ground after the manner of the Chinese, and afterwards conducted us to his hut, where we found his wife, his daughters-in-law, and his grand-children. He ordered a clean mat to be spread, on which he invited us to sit, and a small grain with which we were unacquainted, was prepared for us over the fire in a saucisson with some salmon. This grain is their most precious food. They informed us that it came from the country of the Mantchous; a name they give exclusively to a people who dwell seven or eight days journey from them, up the river Segalien, and who have a direct communication with the Chinese. They informed us by signs, that they were of the nation of the Orotchys; and shewing us four strange

* These marine plants are exactly the same as those which are used at Marseilles for packing casks of oil or liqueur, called *goémon* or *gouémon*.





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left in the middle of their huts, and under the seal of their probity, our bags full of manufactures, beads, iron utensils, and in general, all the articles that we exchanged with them; and never found our confidence abused. We departed from this bay with an opinion that they did not even suspect there existed such a crime as theft.

Each hut was surrounded by a place for drying salmon, which were exposed on poles to the heat of the sun, after having been smoked two or three days round the fire in the middle of their houses. The women who were employed in this operation, are careful, as soon as the smoke has penetrated them, to carry them into the open air, where they acquire the hardness of wood.

They fished in the same river as ourselves, with nets and fish-gigs, and we saw them with a disgusting avidity devour the raw snout, gills, and small bones, and sometimes the whole skin of the salmon, which they stript off with great address. They sucked in the mucilage of these parts as we would swallow an oyster. The greater number of fish were brought home in this state, except when the fishery had been very abundant, on which occasions we observed the women with the same avidity seek out the whole fish, and devoured in an equally disgusting manner the mucilaginous parts; which in their eyes appeared the most delicious food. It was in this bay of Castries that we learnt the use of the thick ring of lead or bone, which these people, as well as those of Segalieu, wear on their thumb. They use it to cut against, in stripping the salmon with a sharp knife, which each of them wears at his waist.

Their village stood on a neck of low and marshy land, exposed to the north, and which appeared uninhabitable during the winter. But on the opposite side of the gulph, on a more elevated spot open to the south, and near a wood, was another village con-

lifting of eight men, and was not more than the former. At a distance of two hundred paces, we saw several houses, except that which was described in the account of the first voyage, were furnished with the same rigour of the winter. Lastly, at a distance of three hundred paces, we saw several houses, but not with the houses. The houses were four, or five tiers, and were Chinese manufactures, and were broadened. Bows, arrows, and most valuable articles were preserved within the monuments, of which the Chinese doors were secured by a bar supported by two stones.

Their houses were filled with their goods in the same manner. No useful articles had been removed. Their cloaths, furs, shoes, their bows, arrows, and their pikets, were in the same manner. They pass the summer on the other side of the island, from whence they come to enter their houses, and even descend into the water, without attending to follow us, or inquiring of us, or inquiring of our carrying away their goods, which, however, they knew we were carrying away, because we had made several attempts to take them. Our men were equally sensible of the value of the goods, and with the officers, and the men who would have been base enough to commit the theft, but they had been covered with shame.

It was evident we had seen the Orinoko only in their country houses, where they caught on the common fishery, which is common to Europe, and their chief subsistence. I observed that the Orinoko was I was inclined to believe, the chief subsistence of the Orinoko. I am inclined to believe, the chief subsistence of the Orinoko.

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provisions, a few roots of lily or *saranna*, which the women gather on the skirts of the woods, and dry at the fire.

It may be concluded, from the number of tombs (for we found them on all the islands, and on all their creeks) that some recent pestilence had ravaged these countries and greatly reduced the number of inhabitants; but I am inclined to believe, that the different families were dispersed in the neighbouring bays in the fishery and curing of salmon, and that they reassemble in the winter, when they bring in their provision of fish for their subsistence, till the return of the sun. It is in fact a mere probable conjecture, that the religious veneration of these people for the tombs of their ancestors, has preserved and repaired them, and retarded perhaps for ages, the unavoidable and silent decay of time. Though I perceived no external difference between the inhabitants; it was not so with the dead, whose ashes repose in more or less magnificence according to their wealth. It is probable, that the labours of a long life are scarcely sufficient to defray the expence of these mausolea, which have at most a relative magnificence, and of which we should form a very erroneous idea, if we compared them to the monuments of civilized nations. The poorer sort are exposed on a bier, placed on a stage supported by stakes four feet high. All have their bows, their arrows, their nets, and some pieces of cloth round their tombs, and it is probable, that to rob them would be deemed a sacrilege,

These people, like the inhabitants of Segalien,*

* The island of Segalien is among those whose name has been most varied by geographers. We find it in ancient maps designated under the following names: Sahalien, Ula-hata, Black River, Saghalien, Anga-hata, Amur, Amour, &c.—*French Editor.*

To these we may add the Sagaleen in the chart of Cook's Voyages. The true appellation seems to be fixed by the observation of La Pérouse, who mentions that the natives pronounced the name of their country exactly as the French pronounce *Ségalien*.

Translator's Note.

seem to acknowledge no chief, and to submit to no government. Yet the manners, and their respect for old people, give this apparent anarchy a character of order. We never witnessed the slightest quarrel, nor their mutual affection, their parental tenderness, presented an interesting spectacle. But all our feelings and sensations changed and revolted at the sight of the salmon, with which the houses and the whole atmosphere were infected. The bones were scattered, and the blood sprinkled about the hearth; their hungry dogs, though familiar and gentle, stood up and devoured these offals; the inhabitants themselves are dirty and flunking to a disgusting degree, and there is not, perhaps, a race more feebly constituted, nor whose countenance is more opposite to all our ideas of beauty. Their average height is under four feet ten inches French; their form is slender, and their voice weak and shrill, like that of children. They have prominent cheek-bones and small blear eyes in diagonal directions. They have a large mouldy nose-hole, a short chin almost beardless, and an olive face, tarnished as it were, with oil and smoke. They let their hair grow, and brace it in various ways in our manner. That of the women is looped upon their shoulders, and the rest of countenance I have described, belongs to them equally with the men. It would, in fact, be difficult to distinguish them, except by a slight difference of dress, and their pecks, which are always open.— They are not, however, subject to any laborious work, which, like the Indians of America, might have impaired the elegance of their features, had nature bestowed on them these advantages. All their cares are limited to cutting and sewing their clothes, disposing the fish for drying, and taking care of their children, whom they suckle till they are three or four years old. I was extremely surprized to observe a child of that age, who after having bent a bow and

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shot an arrow with considerable exactness, and having beat a dog, threw himself on his mother's breast, and took the place of a child of 5 or 6 months old, who had fallen asleep on her knee.

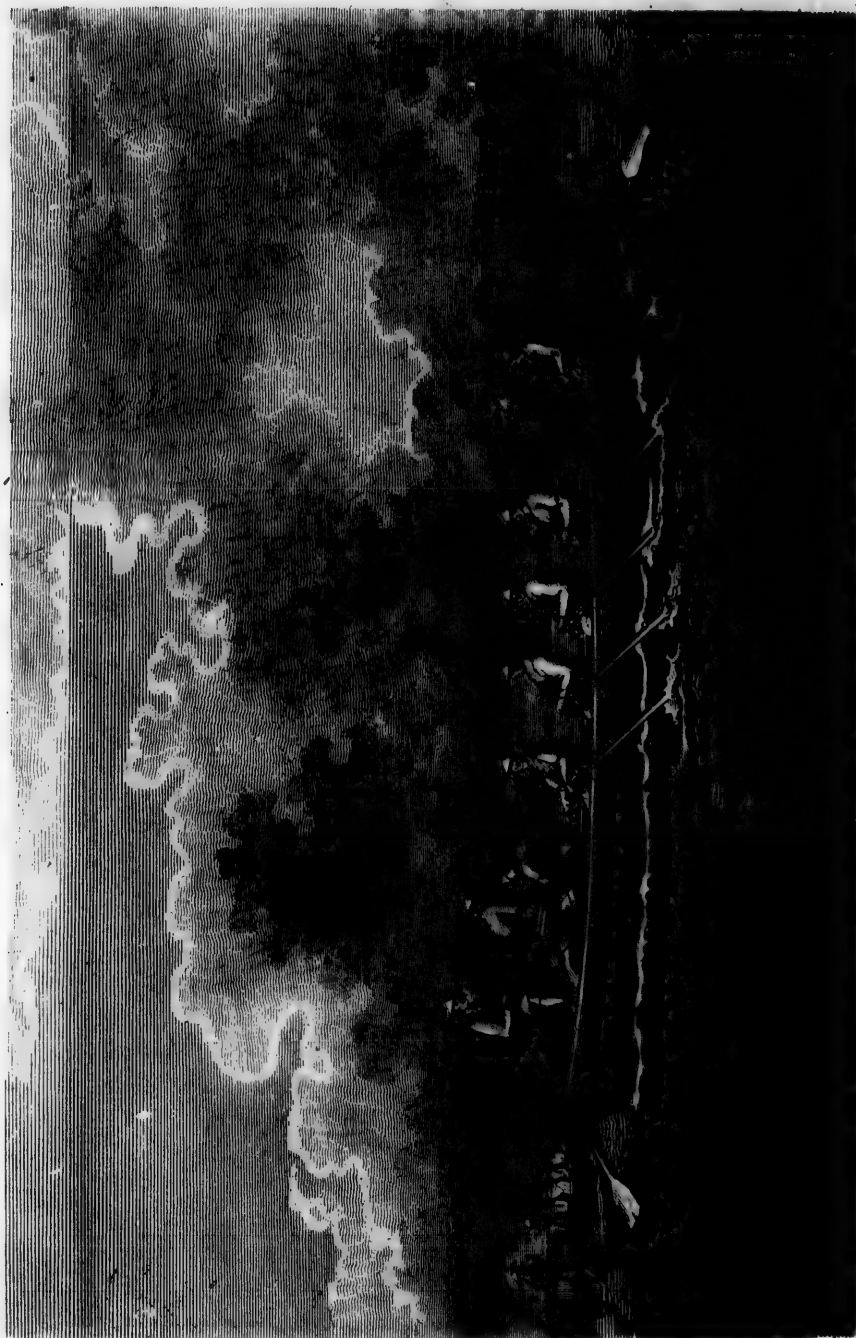
The sex appears here to enjoy great consideration; they never concluded any bargain with us without the consent of their wives. The silver ear-rings and copper jewels which adorned their dress, are entirely reserved for women and little girls. The men and little boys are dressed in jackets of nankeen, dogs-skin or fish-skin in the form of carters' frocks. If these extend below the knee they wear no drawers; otherwise they have such as are used by the Chinese, and which extend to the calf of their leg. They have all boots of seal-skin, which they reserve for winter, and they wear at all times, and at all ages, even at the breast, a leather girdle, to which are suspended a knife and sheath, a flint-steel, a little bag for tobacco, and a pipe.

The dress of the women is somewhat different. They are covered with a large nankeen gown, or one of salmon skin, which they have the art of tanning and rendering extremely flexible. This dress extends to their ankle, and it is sometimes adorned with a fringe of small copper ornaments, which make a noise like little bells. The salmon, whose skin serves for their dress, are not those caught in summer, but such as weigh 30 or 40 pound. Those we caught in the month of July, weighed only 3 or 4; but their numbers and the delicacy of their taste compensated for this disadvantage. We were all of opinion we had never tasted better. We cannot describe their religion, not having perceived either temple or priests, only perhaps some idols of rough sculpture, suspended from the roof of their cottages. These figures represented children, or arms, hands, and legs, resembling the vota of many of our country chapels. It is possible these images, which we may have erroneously taken for
idols,

idols, may only serve as memorials of some child devoured by the bears, or some hunter whom these animals may have wounded. It is not, however, probable, that a people so feebly constituted, should be free from superstition. In fact, we sometimes suspected they took us for magicians ; for they answered our different questions with a complaisance, accompanied with evident marks of uneasiness, and when we traced characters on paper, they appeared to consider the motion of the hand that wrote as magic signs, refusing to answer our enquiries, because as they gave us to understand they considered it an evil. It was with the greatest difficulty and patience that M. Lavaux, surgeon-major of the *Astrolabe*, could form the vocabularies of the *Orothys* and the *Bitchys*. Our presents were not able to overcome their prejudice in this respect, and they even received these with repugnance, and often refused them with obstinacy. I once thought I discovered that they expected more delicacy in our manner of offering them. To discover whether my suspicion was founded, I sat down in one of their habitations drew two children of three or four years old towards me, and having bestowed on them some slight caresses, gave them a piece of rose-coloured nankeen, which I had brought in my pocket. I observed the eyes of the whole family express the liveliest satisfaction, though I am certain they would have refused the present, had I offered it directly to them. The husband quitted the house and soon returned with his finest dog, which he requested me to accept. I refused it, endeavouring to make him understand that it would be more useful to him than to me. But he persisted, and finding that he did not succeed, he called the two children who had received the nankeen, and laying their little hands on the back of the dog, gave me to understand I must not refuse them. So delicate a refinement of manners can only exist in a people

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CANOE of the BITCHYS.

people highly civilized. I believe the civilization of a people who have neither flocks nor agriculture cannot exceed them. I must add, that their dogs were their most valuable property, and they harness them to little sledges, which are very light, extremely well made, and exactly similar to those of Kamtschatka. These dogs, which are of the wolf kind, though of small size, are very strong, very docile, very gentle, and seem to possess the character of their masters, while those of Port des Français, which are much smaller, and of the same breed, are wild and ferocious. A dog from that place, which we had kept on board during several months, wallowed in the blood of the oxen and sheep we killed. He ran upon the fowls like a fox, and seemed rather to possess the propensities of a wolf than those of a domestic animal. He fell overboard, however, when the ship was rolling violently, pushed perhaps by a sailor, whose provisions he had stolen.

The travellers, whose four canoes lay on shore before the village, had excited our curiosity, as their country, which was that of the Bitchys, to the south of the bay of Castries, had done before. We employed all our address to obtain from them information on the geography of the country. We delineated the coast of Tartary, and the river and island of Segatien, which they call *Tshoka*, opposite that continent, and left a passage between them. They took the pencil themselves, and joined the island to the continent. Then pushing their canoe along the sand, they gave us to understand, that after having quitted the river, they had in this manner pushed their boat along the sand bank, which joins the island to the continent, and which they had just traced. Then testing from the beach some of the weed with which I have described the extremity of that gulph to be embarrassed, they placed it on the sand, to express that this marine plant also grew on the

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the bank they traversed. This account made upon the spot by travellers who came from the river—an account so coincident with the result of our own observations, since we had advanced till we had only six fathoms water, left no doubt in our minds. To reconcile the information of these people with those of Langle Bay, it suffices, that at high water there is, at some part of the sand-bank, an opening of three or four feet water, a depth more than sufficient for their canoes. As this was an interesting enquiry, and had never been resolved before, I went on shore next morning, and held a conversation by signs, of which the result was precisely the same. In short, M. de Langle and myself desired M. Lavaux, who had a peculiar sagacity in expressing and understanding foreign languages, to make further researches. He found the Bitchys invariably uniform in their account; and therefore I announced my intention of sending my long-boat to the extremity of the gulph, which could not be above ten or twelve leagues from the bay of Castries. This plan would have been attended with great inconveniences, for the least breeze from the south causes a heavy sea at the extremity of that channel, insomuch that an open boat is in danger of filling with water, the waves breaking as on a bar. Besides this, the perpetual fogs, and the obstinacy of the south wind, would render the time of the long-boat's return very uncertain, and we had not a moment to lose. Thus in lieu of sending the long-boat to clear up a point of geography, on which no doubt could remain, I proposed to redouble our activity, to quit a gulph in which we had been navigating during three months, had frequently traversed in every direction, and constantly sounded, as well for our own security, as in order to leave nothing unaccomplished that geographers could desire.

The lead alone could be our guide in the midst of the fogs, which had so long enveloped us. This however

ever did not exhaust our patience, nor did we omit taking the bearing of a single point on either coast. Only one interesting point remained to be resolved, that of the southern extremity of Segalien Island, which we had only explored as far as Langle Bay, in $47^{\circ} 49'$; and I confess I might perhaps have left that care to others, even had it been possible to pass the strait, because the season was advancing, and I could not lose sight of the extreme difficulty of recovering two hundred leagues to windward in so narrow a channel, covered with fog, and where the southerly winds had never varied two points to the east or west. I knew indeed by the accounts of the *Kastricum*, that the Dutch had found the winds northerly in the month of August; but I must observe, that they navigated on the eastern coast of their pretended *Jessio*; and that we, on the contrary, were ingulphed between two coasts, whose extremity is within the dominion of the monsoons which prevail on the coasts of China and Corea till the month of October.

As it appeared that there existed no cause to change the winds from the direction they had received on those coasts, these reflections increased my ardour to depart, and I ultimately fixed the 2d of August for that step. The interval was employed in exploring some part of the bay, and the various islands by which it is formed. Our naturalists made excursions on every point of the coast which appeared capable of satisfying our curiosity. M. de Lamanon himself, though he had experienced a long illness, from which he had very slowly recovered, determined to accompany us. The lava and other volcanic substances, which he was informed constituted the soil of these islands, prevented him from feeling his indisposition. He discovered, together with the Abbé Mongès, and Father Receveur, that most of the substances in the environs of the bay and of the islands which form its entrance, were red lava, (some solid,

solid, some porous) grey basaltes, tabular or in nodules, and, lastly, trapps, which appeared not to have been attacked by the fire, but which had furnished the matter of the lava and basaltes, that had been melted in this furnace. Various crystallizations were found among these volcanic substances, the eruption of which appeared very ancient. They could not, however, discover the craters of these volcanoes. A stay of several weeks would have been necessary to have studied and pursued the traces that might have led to them.

M. de la Martinière explored, with his usual activity, the beds and courses of the river, in order to discover new plants on their banks; but he only found the same species he had seen on the bays of Ternai and Suffren, and that in smaller quantities. Vegetation was nearly in the same state as in the environs of Paris in the middle of May. Strawberries and raspberries were still in bloom; gooseberries began to redden, and celery and water-creffes were very scarce. Our conchologists were more fortunate. They found extremely fine foliated oyster-shells, of a vinous and black colour, but so closely adhering to the rock, that it required great dexterity to detach them; and their valves were so thin, that it was extremely difficult to preserve them entire. We also took up, with the dredge, some whelks of a fine colour, some peclines, small muscles of the most ordinary species, and some varieties of the kimà cockle.

Our hunters killed several pullets, some wild ducks, cormorants, plover, white and black wagtails, and a small blue fly-catcher, of which we have no description by any ornithologist. All these species of birds are but thinly scattered, for in these climates, which are almost constantly frozen, the nature of all animals appears torpid. The cormorant and the gulls, which under a more favourable sky flock together, dwell here

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here in solitude on the summits of rocks. A deep settled melancholy seems to prevail both on the beach and in the woods, which echo but with the croaking of ravens, and afford refuge to bald eagles and other birds of prey. The marten and sand-marten alone appear to be in their natural climate. We saw nests and flights of them under all the rocks that project in vaulted majesty over the sea. I believe the bird most general throughout the globe is the chimney or water swallow, for I have found some species of them in every country where I have travelled.

Though I did not dig into the earth, I am of opinion that it continues frozen, to a certain depth, throughout the summer, because the water we took in was only a degree and a half above the freezing point, and that of the streams never above four. The mercury however was constantly at fifty-nine degrees, even in the open air. This momentary heat penetrates but a little way, it only quickens vegetation, whose reign begins and ends in the short space of three months, and infinitely multiplies gnats, muskitoes, and other troublesome insects.

No kind of plants are cultivated by the natives. They seem, however, very fond of vegetable substances. The grain of the Mantchous, which may perhaps be a small shelled millet, was their greatest luxury. They gather with great care some spontaneous roots, which they dry for their winter provision; among others the yellow lilly, or saranna, which is, in fact, a species of onion. Possessing a very inferior constitution, and far less industry than the inhabitants of Segalien, they are not, like them, accustomed to the use of the shuttle, and are only dressed with the most ordinary of the Chinese manufactures, or the exuviae of some terrestrial animals and seals. We killed one of the latter, by striking him with a stick. Our gardener, M. Colignon, found it sleeping on the beach, and it was in no respect

respect different from those of Labrador and Hudson's Bay. This incident was followed by an unfortunate event. A torrent of rain having surprized him in the wood, where he was sowing European grain, he began to light a fire; but imprudently making use of gunpowder for that purpose, which communicating with a powder flask in his hand, the explosion broke the bone of his thumb, and he was so severely wounded, that he owed the preservation of his arm to the skill of M. Rollin, our surgeon-major. I shall take this opportunity to say, that M. Rollin, while he divided his care among all the crew, paid particular attention to those who seemed to enjoy the best health. He had observed symptoms of scurvy in several, announced by swellings in their gums and legs. This disorder broke out on shore, and would have yielded to a stay of six weeks; but we could not spare that time at the bay of Castries. We flattered ourselves, however, that sweet-wort, spruce, and an infusion of Peruvian bark in the water, drank by the crew, would dispel these slight symptoms, and thus enable us to wait an opportunity when we might remain a longer time in port.

CHAP. XX.

DEPARTURE FROM THE BAY OF CASTRIES—DISCOVERY OF THE STRAIT WHICH SEPARATES JESSE AND OKU-JESSE*—WE PUT INTO THE BAY OF CRILLON, OFF THE POINT OF THE ISLAND OF TCHOKA OR SEGALIEN—DESCRIPTION OF THE INHABITANTS AND THEIR VILLAGE—WE CROSS THE STRAIT AND RECOGNIZE ALL THE LANDS DISCOVERED BY THE DUTCH ON BOARD THE KASTRICUM—STATEN ISLAND—VRIES'S STRAIT—COMPANY'S LAND—ISLAND OF THE FOUR BROTHERS—ISLAND OF MA-REKA—WE PASS BETWEEN THE KURILES, AND SHAPE OUR COURSE FOR KAMTSCHATKA.

ON the second of August, as I had before announced, we set sail with a light breeze from the west, which only prevailed at the top of the bay. The south winds met us at a league off shore, from the point of Clostercam. They were at first very moderate, and attended with clear weather. We plied to windward with considerable success, making very favourable boards. I endeavoured, in particular, to reconnoitre the small part of the coast of Tartary, of which we had lost sight, from the 49th degree to the 50th, in consequence of having

* The charts of hydrographers preserve the names of almost all the ancient navigators applied to some of their discoveries. These names, which their modesty would have rejected, were doubtless pressed upon them by the solicitations of their crews or officers. But La Pérouse, still more modest, refused to accede to this custom. His name, too intimately united with the terrestrial globe by his discoveries and misfortunes, is not in danger of falling into oblivion. But being obliged, in order to avoid mistakes, to change the name of the strait he discovered between Jesse and Oku-Jesse, I thought it impossible to replace it in a manner more conformable to the national opinion, than by naming it *The strait of La Pérouse*.

—French Editor.

sailed very close to the Island of Segalien. On my return, therefore, I ranged along the coast of the continent to the point of our last bearings, in sight of Peak Lamanon. On the 6th, the weather, which had till then been very fine, became extremely bad. We encountered a gale of wind from the south, less alarming on account of its own violence than of the very rough sea it occasioned. We were obliged to carry all the sail our vessels could bear, in order, as much as possible, to avoid falling to leeward; and that we might not lose, in one day, what we had been three days in gaining. The barometer sunk to 27 inches 5 lines, and the rain, the fog, the wind, our situation in a channel whose limits were concealed in fog; every thing contributed to render our situation at least extremely fatiguing. Yet these squalls, at which we murmured, were the harbingers of northerly winds, on which we had not reckoned. They began to blow on the 8th, after a storm, and enabled us, on the night of the 9th, to get into the latitude of Langle Bay, which we had left on the fourteenth of July. After the accident that had happened to our astronomical tent, in the Bay of Castries, it was of great importance again to find this point, of which the longitude had been perfectly well determined in our first passage. It would serve to ascertain the regularity of our time-keepers, by comparing, with the known longitude of Langle Bay, that which would be given by our time-keepers for the same point. The result of our observations was, that after 27 days, No. 19 placed us 34 minutes of a degree too much to the eastward. This error equally divided between the 27 days, would give an increase of 5" in the daily loss of the time-keepers, which, at Cavita, was but 12" per day. But M. Dagelet, who very frequently compared the results of our lunar observations with those given by No. 19, had remarked the period when that time-keeper had varied

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varied from the daily rate it went at during our stay at Cavita : and as he was confident these results would agree, if we supposed a loss of 20" per day, instead of that of 12", observed at Cavita, he thought he ought to establish that rate for the calculations by the time-keeper No. 19, during the 27 days elapsed between our departure from Langle Bay, and our return within sight of the same point. We have, therefore, reason to think that all the western part of the Island of Segalien, as well as the east coast of Tartary, which form the two sides of the channel, will be laid down in our chart, with a degree of accuracy that will not leave an uncertainty of a quarter of a degree in their situation.

A bank, on which the soundings are extremely regular, and where there is no danger, extends 10 leagues N. and S. opposite to Langle Bay, and runs out about 8 leagues to the westward. We passed it in running to the southward, and I lay to from 10 o'clock at night till day break, in order not to leave the smallest inlet without being reconnoitred. The next day we continued ranging along the coast, at two leagues distance, and perceived, bearing S. W. a small flat island, forming, with that of Segalien, a channel about six leagues wide. I gave it the name of *Isle Monneron*, from the officer of engineers employed in this expedition. We directed our course between these islands, where we never found less than 50 fathoms water. We soon got sight of a peak, whose height was at least 1000 or 1200 toises, which seemed to consist entirely of bare rock, and to preserve the snow in its hollows. We perceived neither trees nor verdure on it. I gave it the name of *Pic de Langle* *. At the same time, we saw other

* This peak is in 40 deg. 15 min. N. lat. Capt. Vries, who commanded the *Kaïtricum*, on making the land of Jesso, in the month of June, 1643, also discovered a remarkable peak in 44 deg.

other lands less elevated. The Coast of Segalien terminated in a point, and we perceived no longer a double range of mountains; for every thing announced that we were almost at its southern extremity, and that the lands to which the peak belonged were upon another island. We anchored at night with this hope, which became next day a certainty, when a calm obliged us again to anchor off the south point of the Island of Segalien. This point, which I named *Cape Crillon*, is situated in $45^{\circ} 57' N.$ lat. and $140^{\circ} 34' E.$ long. It terminates this island, which is one of the most extensive, from north to south, on the globe; and is separated from Tartary by a channel, ending in sand banks to the northward, between which there is no passage for ships, although there is probably some channel for canoes, through the sea-weeds that obstruct the strait. This same island is Oku-Jesso*: whereas the island of Chicha, which was abreast of us, and which is separated from that of Segalien by a channel 12 leagues wide, and from Japan by the strait of Sangaar, is the Jesso of the Japanese, and extends to the southward as far as the strait of Sangaar. The chain of the Kurile Islands is much further to the eastward, and forms, together with Jesso and Oku-Jesso, another sea, communicating with that of Okhotsk, and from whence there is no passage to arrive on the Coast of Tartary, but by traversing either the strait we had just discovered, in $45^{\circ} 40'$, or that of Sangaar, after having sailed out from between the

50 min. N. lat. which he called *Anthony's Peak*. These peaks, situated to the southward of the strait of La Pérouse, will render it extremely easy to recognize. It is, however, probable that the land laid down in the maps, under the name of Jesso, is an assemblage of several islands.—*French Editor*.

* Oku-Jesso signifies Upper Jesso, or North Jesso. The Chinese call it *Ta-ban*.—*French Editor*.

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Kuriles. This point of geography, the most impor-
tant that modern navigators had left to be deter-
mined by their successors*, cost us many fatigues,
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* An impenetrable darkness has till now enveloped the
parts of the globe called Jesso and Oku-Jesso, concerning whose
position the opinions of geographers had been so various, that it
was doubtful whether their existence was not chimerical. In fact,
if we consult the maps of Asia of the following geographers, we
shall see, that in 1650, Sanfon represents Corea as an island, while
Jesso, Oku-Jesso, and Kamtschatka, have no place, and the strait of
Anian is laid down separating Asia from North America.

In 1700, William de Lisle joined Jesso to Oku-Jesso, and extend-
ed them as far as the strait of Sangaar, under the name of Jesso
land.

Danville, in 1732, published a map of this part of Asia much
nearer the truth than that which he produced twenty years after-
wards, in which the gulf and cape of Aniva form part of the con-
tinent, and Cape Patience is the southernmost point of the island of
Segalien. These charts and some of the following have fallen into
the same error, with regard to the bay of Tessoy.

Defnos, like Danville, has retarded the science of geography,
by his map of 1770, which is much inferior to that published by
him in 1761.

In 1744, Hadius made Jesso, Cape Aniva, and Cape Patience,
form a peninsula adjoining Tartary, from which it was partly se-
parated by a gulf, the entrance into which was through the strait of
Tessoy.

A map of Asia, without date or author's name, but which must
have been printed since the voyage of the Kastricum, represents the
two Jessoes as two islands, independently of the island of Segalien.
The intermediate Jesso seen by the Dutch, comprehends the gulf
and Cape Aniva, but we must remark, that the second Jesso is se-
parated from Segalien by a strait laid down in 44 deg., which
proves, that they already conjectured the existence of the strait dis-
covered by La Pérouse, suspected by Father du Halde, and adopt-
ed, though afterwards rejected, by Danville.

Robert, in 1767, Robert de Vaugondy, in 1775, Brion, in 1784,
and William de Lisle jointly with Philip Buache, in 1788, have suc-
cessively copied and perpetuated the same errors.

In short, we cannot better depict the chaos of our ideas concern-
ing this part of the globe, of which our ancient knowledge has been
so learnedly discussed and compared by Philip Buache, than by
the following extract from *Considerations Géographiques*, page 115.

"Jesso, after having been transported to the east, attached to
"the south, and then to the west, was at last removed to the
"north."

and required great caution, because the fogs render navigation in these seas extremely difficult. Since the 10th of April, when we had departed from Manilla, till the day when we passed the strait, we only put in for three days into the Bay of Ternai, one into Langle Bay, and five into the Bay of Castries, for I do not include our anchoring on the open coast, although we might send to reconnoitre the land, and at these anchorages procured some fish. It was at Cape Crillon that we received the first visit from the islanders, for they had received ours without showing the smallest curiosity or desire to see our vessels. At first they showed some distrust, and would not approach till we had pronounced several words of the vocabulary which M. Lavaux had made at Langle Bay. If their fear was at first considerable, their confidence now became extreme. They came on board our ships, as if we had been their dearest friends, sat in a circle on the quarter-deck and smoked their pipes. We loaded them with presents, giving them nankeens, silks, utensils of iron, beads, tobacco, and in general whatever I thought would be agreeable to them. I soon perceived that brandy and tobacco were the articles they prized the most, yet these I was most careful to distribute sparingly, because the latter was necessary for our crew, and I feared the consequences of the former. We remarked that in the Bay of Crillon the countenances of the inhabitants were more particularly beautiful, and of a very regular proportion. They were strong made, and had the appearance of great vigour. Their beards hung upon their breast, and their arms,

My only intention, in these comparisons, is to establish by incontestible proof, that the geography of the eastern part of Asia was in its infancy in 1788, an æra subsequent to the departure of our unfortunate navigator, and that we are indebted to his perseverance, zeal, and courage, for the knowledge which has at length cleared up our doubts.—*French Editor.*

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neck, and back, were covered with hair. I make this observation merely because it is a general characteristic, for it is easy to find individuals equally hairy in Europe. I think their middle stature about an inch less than that of the French, but this is difficult to discover, on account of their just proportion, and their strongly marked muscles, which made them appear in general fine figures. Their skin is as dark coloured as that of the Algerines, and other nations of the coast of Barbary.

Their manners are serious, and their thanks were expressed by noble gestures; but their requests for more presents were repeated, even to importunity. Their gratitude, however, did not extend so far as to offer us even a salmon in their turn, although their canoes were full, and they returned with a part, because we refused paying the exorbitant price they demanded; yet they had accepted gratuitously our cloths, stuffs, iron utensils, beads, &c. for the joy of having discovered another strait besides that of Sangar had rendered us generous.

We could not but remark how much the gratitude of these Islanders differed from that of the Orotchys of the bay of Castries, who, far from asking for presents, often obstinately refused them; and were extremely urgent that we would permit them to return the obligation. If, however, their moral principles are inferior to those of the Tartars of that country, they have a decided superiority by their industry and physical powers.

All the clothes of these Islanders are wove by their own hands, and their houses present a degree of neatness and elegance to which those of the continent do not approach. Their furniture is made with skill, and almost entirely of Japanese manufacture. They have one article of trade extremely important, and unknown in the channel of Tartary, and the barter of which procures them all their riches, I mean whale

oil. Though they make a considerable quantity ; their mode of extracting it is by no means the most economical. They cut the flesh of the whale in pieces, and leave it to rot on a declivity exposed to the sun. The oil that runs from it is received in vessels made of the bark of trees, or of seal skin. It is to be remarked, however, that we did not see a single whale to the westward of the island, and that they abound on its eastern coast. We cannot doubt that these Islanders are a different race of men from those we had observed on the continent, although they are separated from it by a channel, not more than three or four leagues across, and obstructed by sand-banks and sea-weed ; yet they pursue the same mode of life, and hunting and fishing (particularly the latter) furnish the greater part of their subsistence. They leave the most fertile lands uncultivated, and they seem, in both countries, to have neglected the care of flocks, which they might have brought from the upper part of the Segalien, or from Japan. Thus similar food appears to have formed very different constitutions. The cold of the islands is indeed much less rigorous in the same latitude than that of the continent ; but this cause alone cannot have produced so remarkable a difference. I am of opinion, therefore, that the Bitchys, the Orotchys, and the other Tartars of the coast, as far as the neighbourhood of the northern coast of Segalien, have a common origin with the Kamtschadales and Koriacs ; and that this race of men, like the Laplanders and Samoiedes, are to the human species what their stunted birches and firs are to the forest trees of the more southern climates. The inhabitants of the islands of Segalien are, on the contrary, a very superior race to the Japanese, Chinese, and Mantchou Tartars ; and their countenance more regular and more similar to those of Europeans. But it is extremely difficult to decypher the archives of the world, so as to discover the origin of nations, and
travellers

travellers must leave it to their readers to draw inferences from their narratives.

Our first enquiries regarded the geography of the island, part of which was already better known to us than to its inhabitants. They seemed to be in the habit of delineating countries, for, with a single stroke, they described the part we had just explored, as far as the Segalien, leaving a narrow passage for their canoes: and they marked each night's resting place, and gave it a name. In short, we cannot doubt that although at a distance of above 150 leagues from the mouth of that river, they are all perfectly acquainted with it. Without this river, which forms a communication with the Mantchou Tartars who trade with China, the Bitchys, the Orotchys, and the Segaliens, and, in general, all the inhabitants of these maritime countries, would know as little of the Chinese and their merchandize, as the inhabitants of America. Their knowledge was however deficient when they delineated the eastern coast of the island; for they drew it on the same line north and south, and seemed ignorant that it lay in a different direction. Thus we were left in doubt, and imagined, for a moment, that Cape Crillon concealed from us a deep gulf, after which the coast would again trend to the southward. This opinion, however, was scarcely probable. The strength of the current from the eastward announced an opening; but as we were in a dead calm, and prudence did not admit of our suffering the current to carry us to leeward too near the cape, M. de Langle and myself thought it necessary to send a boat on shore under the command of M. de Vaujuas, to whom we gave orders to ascend the summit of Cape Crillon, and thence to take the bearings of all the lands he should perceive beyond it. This officer returning before night, his account confirmed our first opinion, and we were convinced that we could not be too circumspect, or too much on our guard against mistakes, when

when we wished to describe an extensive country from data so vague and so subject to illusion as those we had been able to procure. These people seem, in their navigation, to pay no respect to the change of direction. A cove three or four times as long as a canoe, appeared to them an extensive harbour, and a fathom of water an almost immeasurable depth. For their scale of comparison is their canoe, which draws but a few inches of water, and is but two feet wide.

M. de Vaujuas paid a visit, before he returned, to the village on the point, where he was perfectly well received, having made some exchanges there, and brought back some salmon. He found their houses better built, and more richly furnished, than those of d'Estaing Bay; and the inside of several adorned with large varnished Japan vases. As the island of Segalien is only separated from that of Chicha by a strait 12 leagues wide, it is easier for the inhabitants of that part of its coast to procure their merchandize from Japan, than for their countrymen more to the northward. But the latter are nearer to the river Segalion, and the Mantchou Tartars, to whom they sell their whale oil, which is the basis of their commerce.

The Islanders who visited us, retired before night, and gave us to understand, by signs, that they would return the next day. They came on board at day-break with some salmon, which they exchanged for hatchets and knives. They also sold us a sabre, and a cloth dress of their country, and seemed to be afflicted when they saw us prepare to set sail. They were very urgent that we should double Cape Crillon, and put into a creek which they delineated, and called *Tabouoro*. This was the gulf of Aniva.

A light breeze springing up from the N. E., I made the signal to get under way, and shaped my course at first to the S. E., to give a good birth to Cape Crillon, which is terminated by an islet, or rock, towards which the tide set with the greatest strength. As

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soon as we had doubled it, we perceived, from the mast-head, a second rock, which appeared four leagues from the point towards the S. E. I named it *La Dangereuse*, because it lies even with the surface of the sea, and may, perhaps, be covered at high water. I steered to leeward of this rock, and passed round it at the distance of a league. The sea broke very much upon it, but I was unable to discover whether this was the effect of the tide, or of the shoals that surround it.

At this distance the depth of water was constantly 23 fathoms, and encreased when we had doubled it. We then soon came into 50 fathoms water, and the current appeared to be moderate. We had hitherto crossed in this channel, tide-ways stronger than those of du Four, or du Raz of Brest. We only found them, however, on the coast of Segalien, or on the northern side of this strait. The southern coast, towards the island of Chicha, is much less exposed to them. But we were buffeted about by a swell from the offing, or from the eastward, which put us in the greatest danger, throughout the night, of running foul of the *Astrolabe*, as a dead calm prevailed, and neither of our ships had steerage way. We found ourselves the next day a little to the southward of our reckoning, though not more than ten miles to the northward of the village of Acqueis, so named in the voyage of the *Kastricum*. We had just traversed the strait which separates Jessö from Oku-Jessö, and were very near the anchoring-place of the Dutch at Acqueis. That strait had, doubtless, been concealed from them by fogs; and it is highly probable, that summits of mountains on each of the islands, had led them to believe they were joined together by lowlands; and, in consequence of this opinion, they have laid down a continuation of coast in the very spot where we passed. With the exception of this error, their journals are nearly accurate. We set Cape
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Aniva nearly in the same point of the compass laid down in the Dutch maps, and perceived also the gulf to which the *Kastricum* gave the same name of Aniva. It is formed by the cape of that name, and Cape Crillon. The latitude of these capes only differ ten or twelve minutes, and their longitude, after passing Cape Nabo, less than a degree from those we had determined: a precision which, considering the time when the expedition of the *Kastricum* took place, is truly astonishing. I formed a resolution not to alter any of the names given by the Dutch, whenever a similitude in their relations has made me recognize them. But it is very singular that the Dutch, when steering from *Acqueis* for the gulf of Aniva, passed before the mouth of the strait we had discovered, without imagining, when they had anchored at Aniva, that they were upon another island; so similar are the external appearances, manners, and mode of life, of these two nations.

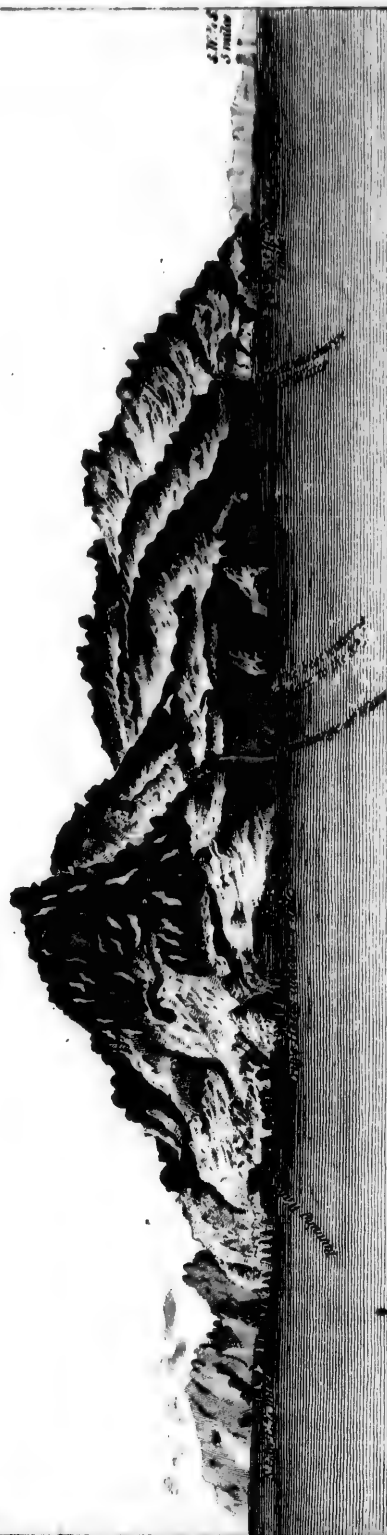
Though the weather was very fine the next day, we made but little way to the eastward. We saw Cape Aniva bearing N. W., and perceived the eastern coast, which recedes again to the northward, towards Cape Patience, in the latitude of 49° . This point was the utmost limit of the navigation of Captain Vries: and as his longitudes from Cape Nabo are nearly accurate, the Dutch chart, of which we verified a sufficient number of points to establish its claim to our confidence, gave us the breadth of the island of Segalien as far as the 49th degree. The weather continued fine, but the E. S. E. winds, which had constantly prevailed during four days, retarded our advancing towards the Staten Island and Company's land. Our latitude on the 15th was, by observation, $46^{\circ} 9' N.$, and our long. $142^{\circ} 57' E.$ We did not then see any land, and we endeavoured repeatedly, though in vain, to strike ground with a line of 200 fathoms.

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On the 16th and 17th the sky was overcast and watery, and the sun invisible. The wind came round to the eastward, and I tacked to the southward, in order to approach Staten Island, of which we had a perfect view. On the 19th we observed Cape Troun bearing south, and Cape Vries S. E. by E., the very points on which they ought to bear of us, according to the Dutch chart. Modern navigators could not have determined their position with greater accuracy.

On the 20th we saw Company's Land, and distinguished the Strait of Vries, which, however, was very foggy. We ranged the northern coast of the Company's Land, at the distance of 3 or 4 leagues. It is barren and destitute of trees or verdure, and appeared uninhabited and uninhabitable. We remarked the white spots, mentioned by the Dutch, and took them at first for snow; but, on a more attentive examination, we perceived in the rocks large clefts of the colour of plaster. At 6 in the evening we were a-breast of the N. E. point of this island, which terminates in a very steep cape; I named it *Cape Kasfricum*, from the vessel to which we owe its discovery. We perceived beyond it a little island, and to the north a wide channel, apparently open to the E. N. E. and separating the Kurile Islands from Company's Land, whose name ought to be religiously preserved to it, and to prevail over those it may have received from the Russians, more than a century after the voyage of Capt. Vries.

The 21st, 22d, and 23d, were so foggy, that it was impossible to continue our course to the eastward, a-breast of the Kuriles, which we should not have been able to perceive at two cables' length. We therefore continued standing off and on at the mouth of the strait, where the sea appeared to be disturbed by no current. Yet our observations of longitude on the 23d apprised us, that we had been drifted 40 miles to the westward in two days. We
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verified this observation on the 24th, by setting the same points we had seen on the 21st, precisely where they ought to bear of us according to our longitude by observation. The weather, although very foggy, had allowed us to stand on during a part of the day, as it frequently cleared up; and we perceived and set the northernmost of the islands of the Four Brothers, and two points of Mareckan Island, which we took for two distinct islands. The southernmost of these bore East 15° South. We had now advanced only 4 leagues to the N. E. in 3 days, and the fogs having become much thicker and continued without intermission during the 24th, 25th, and 26th, we were obliged to stand off and on between these islands, of which we knew neither the extent nor direction; not having, as on the coasts of Tartary and Oku-Jetto, the resource of sounding, in order to know how near we were to the land, because here we could not find bottom. This situation, one of the most fatiguing and tiresome of the whole voyage, continued till the 29th, when we had a clear interval, and perceiving the summits of mountains in the east I stood on to approach them. The low lands now began to appear, and we distinguished the island of Mareckan, which I consider as the first of the southern Kurile islands, in extent from N. E. to S. W. about twelve leagues. A high hill terminates each extremity, and a peak, or rather to judge by its form, a volcano, rises in the middle. As I had an intention of sailing out from the Kuriles, by the channel which I supposed to lie to the north of Mareckan; I shaped my course to approach the N. E. point of this island. I then perceived two others to the E. N. E. but more distant, and appearing to leave between them and the former, a channel of 4 or 5 leagues. But at 8 in the evening, the wind came round to the north and died away, and there being a great swell, I was obliged to put about, and stand to the westward, in order

order to gain an offing : for the sea was setting us in shore, and we had not struck ground a league from the land, with a line of 200 fathoms. These northerly winds determined me to sail out by the channel, to the southward of the island of Mareckan, and to the northward of the Four Brothers. It had appeared wide, and its direction was to the southward, nearly parallel to the channel of Vries, which put me out of my course. But the winds left me no other alternative, and clear days were so rare, that I thought it my duty to take advantage of the only one we had experienced for 10 days past.

We crowded sail during the night, in order to arrive at the entrance of this channel, but had very little wind, and the sea was very heavy. When day returned we set, bearing S. E. distant about two leagues, the S. W. point of Mareckan, which I named *Cape Rollin*, from our surgeon-major ; and we were quite becalmed, without even the resource of anchoring, should we be drifted in shore, for we could not strike bottom. Fortunately the current carried us perceptibly into the middle of the channel, and we advanced about five leagues to the S. S. E. though without wind enough to steer. We now perceived bearing S. E. the Four Brothers ; and as very good observations of longitude permitted us to determine their position, as well as that of Cape Rollin, in the island of Mareckan, we were convinced that the width of the channel was about fifteen leagues. The night was very fine, the wind settled at E. N. E. and we entered the channel by moon light. I named it the *Canal de la Bouffole* ; and I think it the finest of all the channels which separate the Kuriles from each other. We were very fortunate in seizing this interval, for the weather was overcast at midnight, and the thickest fog covered us at day-break, before we were certain of having entirely cleared the channel. I continued standing to the southward in the midst
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of these fogs, with the intention of approaching the islands to the northward, with the first clear interval, and if possible to explore them as far as Point Lopatka ; but the fogs were more constant here than on the coast of Tartary. During ten days we had only twenty-four hours clear weather, and most of that time it was a dead calm ; so that we were happy to take advantage of the half of a fine night to get out into an open sea.

At six in the evening I tacked to the northward towards the land, from which I supposed we were about twelve leagues distant. The fog still continued equally thick. Towards midnight the wind came round to the westward, and I steered to the eastward, waiting for day-light, again to get near the coast. The day appeared without dissipating the fog, though the sun however pierced it twice during the morning ; and extending our horizon for only a few minutes to one or two leagues, we seized the opportunity to take the altitude of the sun, in order to know the true time, and thence deduce the longitude. These observations left us in some incertitude, because the horizon was not clearly defined. They apprized us, however, that we had drifted about ten leagues to the S. E. which coincided with the results of the different bearings we had taken the preceding evening during the calm. The fog returned with obstinacy, and was equally thick the next day. I therefore determined, as the season was advancing, to abandon my intention of exploring the northern Kuriles, and to shape my course for Kamtschatka. We had determined the place of the southernmost islands, and these were the objects of incertitude to geographers. The situation of Mareckan being also accurately settled, as well as that of Point Lopatka, it seemed impossible any error of importance should remain in the direction of the islands between these two points. I therefore thought
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it improper to sacrifice to an almost useless research the health of the ships' crews, who began to stand in need of repose, and whom the continual fogs kept in a state of moisture very prejudicial to their health, notwithstanding the precautions we employed to counteract it. I consequently steered E. N. E. and renounced my intention of anchoring off one of the Kuriles, in order to observe the nature of the soil, and the manners of the inhabitants. I am confident they are the same nation as the inhabitants of Tchoka and Chicha, according to the accounts of the Russians, who have given us a vocabulary of their language, exactly similar to that we formed at Langle Bay; the only difference consisting in the manner in which we have understood and expressed their pronunciation, which could not strike Russian and French organs of hearing in a manner exactly similar. The southern islands too, along which we ranged, wear a horrid aspect; and I am of opinion the Company's land, that of the Four Brothers, the island of Mareckan, &c. are uninhabitable. Barren rocks, destitute of verdure and of vegetable soil, can but serve as a refuge to the shipwrecked navigator, who could then do nothing better than to get immediately to the islands of Chicha, or of Tchoka, by traversing the channels that separate them.

Till the 5th of September the fog continued equally obstinate as before; but as we had a good offing we crowded sail in the midst of the obscurity; and at six in the evening of the same day the weather clearing up, permitted us to see the coast of Kamtschatka. It extended from the W. by N. to N. by W. and the mountains which we set in that point of the compass, were precisely those of the volcano, lying to the northward of St. Peter and St. Paul, from which, however, we were more than thirty-five leagues, our latitude being $51^{\circ} 30'$.

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All this coast wore the most hideous appearance. The eye was pained with viewing it, and shunned with horror these terrible and enormous masses of rock, which the snow yet covered at the beginning of September, and which seemed never to have been blessed with vegetation.

We now shaped our course to the northward, and during the night the wind came round to the N. W. The next day the weather continued clear. We had then neared the land, which afforded the eye a very agreeable object, when viewed at a small distance; and the bases of these enormous mountains, whose summits are crowned with eternal frosts, were carpeted with the most beautiful verdure, from the midst of which various tufts of trees spread their luxuriant branches.

In the night of the 6th we got sight of the entrance of the bay of Awatscha, or St. Peter and St. Paul. The light-house which the Russians have erected on the easternmost point of this bay, was not lighted during the night. The governor told us the next day he had made ineffectual exertions to keep up the fire, for the wind constantly extinguished the light, which was only sheltered by four deal planks, badly put together. The reader will easily perceive that this public work, so worthy of Kamtschatka, has not been modelled on any ancient pharos of ancient Greece, of Egypt, or of Italy. Yet we must go back to the heroic ages that preceded the siege of Troy, to find so warm an hospitality as is cherished in this barbarous country. We entered the bay at ten o'clock at night, and the governor came five leagues to meet us in his canoe, although the care of the light-house had employed him all the night; for he took on himself the fault of not being able to keep the fire a light. He told us we had long been announced, and that he believed the governor general of the peninsula, who had been expected

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expected during five days at St. Peter and St. Paul, had some letters for us.

We had scarcely anchored before we saw the good vicar of Paratounga, with his wife and all his children, come on board. From that moment we foresaw that we might perhaps behold some of the personages who acted a part in the last voyage of Captain Cook, and that it would be easy to introduce them again upon the scene.

CHAP. XXI.

SUPPLEMENT TO THE PRECEDING CHAPTERS—ADDITIONAL DETAILS RELATIVE TO THE EASTERN COAST OF TARTARY—DOUBTS CONCERNING THE PRETENDED PEARL FISHERY, SPOKEN OF BY THE JESUITS—PHYSICAL DIFFERENCE BETWEEN THE ISLANDERS OF THAT COUNTRY AND THE INHABITANTS OF THE CONTINENT—POVERTY OF THE COUNTRY—IMPOSSIBILITY OF CARRYING ON ANY PROFITABLE BRANCH OF COMMERCE THERE—VOCABULARY OF THE INHABITANTS OF THE ISLAND OF TCHOKA, OR SEGALIEN.

OUR navigation from Manilla to the island of Quelpaert was only new to ourselves; for the Dutch have long carried on a trade with Japan, and send one or two ships every year to Nangasacki: but I know not whether they direct their course by the channel of Formosa, or pass to the eastward of that island. I have been assured that their captains take an oath before their departure from Batavia to keep the particulars of their voyage secret, and to suffer no copies of the manuscript charts delivered them to be

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taken. Does not this precaution shew they are of opinion other Europeans would be received at Japan equally with themselves, and might trade there in competition with them? Or is it not possible, on the other hand, that this oath is merely an ancient custom they have neglected to reform?

Be this as it may, I am of opinion the time is at length arrived when the veil of mystery will be removed from particular navigations. That art has made too important a progress to be retarded by such obstacles. Geography will now cease to be an abstruse science, because the spirit of dispute and criticism will become useless, when every important point of land shall be laid down by accurate observations of latitude and longitude. The period is rapidly approaching when every nation will know the extent of the seas that surround them, and of the land they inhabit. Although the seas of Tartary that we explored, are the limits of the continent most anciently inhabited, these were equally unknown by the Europeans with the straits of Anian, or the archipelago of St. Lazarus. Even the Jesuits, who have made us so well acquainted with China, have not afforded us any information on the eastern part of this vast empire; and those who have travelled into Tartary, were not permitted to approach the sea coast. This precaution, and the prohibition by the Emperor of Japan, in all ages, to navigate to the northward of his dominions, were motives to believe this part of Asia concealed immense riches, which the policy of Japan and China dreaded making known to the Europeans. The details of the preceding chapters must have convinced the reader, that the eastern coast of Tartary is still less inhabited than that to the northward of America. Separated in a manner by the river Segalien from the continent, to whose direction its course is almost parallel, as well as by inaccessible mountains, it has never been visited

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visited by the Chinese and Japanese, but near its limits towards the sea. The very few inhabitants we meet with, derive their origin from the nations who inhabit the north of Asia, and have no analogy, in this respect, with the Mantchou Tartars, and still less with the islanders of Oku-Jessô or the Kuriles. It is easy to perceive that such a country, situated between the sea, and mountains less than twenty leagues from the coast, cannot be furnished with any considerable river. The Segalien, which is beyond it, receives all the streams which run to the westward. Those to the eastward are divided into rivulets in all the valleys; and no country is better watered, nor displays a more delightful freshness in summer. I estimate at less than 3000, the total of the inhabitants composing the little colonies of this country, from the point where we first made land, in 42° , to the bay of Castries, near the mouth of the Segalien. This river, which the Mantchou Tartars descended in canoes to the sea, from whence they spread over the coast, both to the northward and southward, forms the only avenue to their internal commerce. It is now indeed very much frequented; and there is not perhaps a single individual on this part of the continent, and on the islands of Jessô and Oku-Jessô, who is not as well acquainted with the Segalien as the inhabitants of Egypt and Judea were with the Nile. But their commerce is carried on only eight or ten days' sail up that river; and it appears that its mouth, like that of the Ganges, presents an uninhabited country; a circumstance to be attributed to the sterility of a soil, almost inundated, and covered with swamps and marshes, where the flocks of cattle, which form the principal riches of the Tartars, cannot find a salubrious subsistence. I have observed, that the Jesuits declare there is a pearl-fishery on this coast. In fact, we found oysters containing pearls; but I acknowledge I know not where

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where to place this fishery, unless it be on the confines of Corea, or at the mouth of the Segalien. In that case, I imagine it cannot be comparable to those of Bassora, or the Gulf of Monaar, which employ five or six thousand hands. It is possible, however, that some families of fishermen may unite there, in order to fish for pearls, which they may afterwards barter for nankeens and other objects of commerce, from China, of small value. I tried the experiment of shewing the Bitchys, and the islanders of Oku-Jessô some false pearls, perfectly well imitated, yet did not perceive they were more struck with them than with common beads.

We should form a very erroneous idea of this country, if we supposed we might arrive there, by the rivers that flow from the interior of the country, or that the Chinese carry on any trade there. We ranged close along the coast, and frequently within gun shot, without perceiving any village. We saw in the bay of Ternai bears, hinds, and sawns feeding like domestic animals, and raising their heads to view our ships with astonishment as we arrived in the bay. A tomb and some burnt trees, were the only objects that authorised a supposition of other inhabitants. The bay of Suffren was no less a desert; and twenty-five or thirty individuals seemed to form the whole population of the bay of Castries, though it might easily have supported 10,000 persons.

Our naturalists found on the coast, and at the mouths of the rivers, neither pyrites nor pebbles containing ore, nor gold dust disseminated among the sand, in short nothing shewing the soil to contain any metal. However, we found flints, chalcedonies, spars, zeolites, porphyry, and a variety of volcanic substances, which contained very little shorl, but a great quantity of the fine chrySTALLIZATIONS, and incrustations, found in the lava of extinguished volcanoes. The coast of Oku-Jessô which forms the eastern shore

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shore of the channel of Tartary, is still more fertile in plants than that of the continent opposite to it, and vegetation seemed to be there enlivened with superior energy. Yet the inhabitants do not on that account lay a heavier tax on the fertility of the soil, and the animal kingdom almost exclusively furnishes them with subsistence. For I do not consider a few cloves of saranna and garlic, which the women dry and gather on the skirts of the woods, of much importance. I am even inclined to believe, that hunting is rather their amusement than their occupation, for fish either fresh or dried, like corn in France, is with them the basis of their nourishment. Two dogs, given me at the bay of Castries, at first refused to eat meat, but fell on fish with a voracity equalled only by that of wolves that have been long famished: necessity alone accustomed them by degrees to a different kind of food.

The bear and elk skins with which these people were clothed, left no doubt that in winter they hunt these animals. But the inhabitants of the continent are, in general too feeble to venture to engage them with arrows. On the contrary they informed us by signs, that they set snares for them by fixing a bait to a bow powerfully drawn. The animal while devouring the bait, lets off a trigger, which shoots an arrow aimed at the bait. But the islanders, more generous, because more robust, seemed proud of their wounds, and delight in exhibiting them, giving us to understand they had combated bears with stakes, after having wounded them with arrows.

Their canoes are formed of an excavated fir tree, and hold seven or eight persons. They manage them with very light oars, and in these slight vessels, undertake voyages of two leagues from the southern extremity of Oku-Jessò and Jessò in 42°, as far as the river Segalien in 53°. But they never go more than a pistol-shot from shore, except when they cross from

one island to another, and for this they wait for a dead calm. The wind, which always follows the direction of the channel, never raises a surf upon the shore ; so that it is as easy to land in all the creeks, as in the best sheltered roadsteads. Every night they run their canoes aground on the beach, and carry with them birch bark, which with some fir branches, enables them to construct a cabin in an instant. Rivulets filled with salmon secure them a subsistence, and each owner of a canoe has his kettle, his trivet, his flint-steel, and tinder bark, and wherever they land their hut is erected, their fish harpooned, and their meal prepared within an hour of their landing. This kind of navigation is as safe as that of the canal of Languedoc. They arrive within a stated number of days, and stop every evening in the same creeks, or on the banks of the same rivulets. They marked upon our chart the number of their resting places between Cape Crillon and the river Segalien, whence it appears, they make 11 leagues a day ; and though their canoes are furnished with neither masts nor yards, they sometimes fix a shirt on two oars placed across, and thus by sailing get on with less fatigue than by rowing. Near their villages are small canoes for only one or two persons, which though never used in long voyages, are employed in entering the rivulets to fish. They are so extremely light, that when the depth of water is but 12 or 15 inches, they use small sticks instead of poles, and keeping their seats, push against the bottom, so as to pass on with very great rapidity. When the depth is greater, they manage them with paddles. The manners and customs of these two people differ by very slight shades. They pursue the same mode of life, use the same naval and domestic architecture, and pay the same respect to old age. But in this parallel, I am persuaded the Tartars excel in morality, and the islanders in industry, and particularly in the firmness and other virtues arising

1787.] arising from a consciousness of their own strength. We thought we observed in Oku-Jesso, a distinction of rank which does not exist in Tartary. In each canoe was a man with whom the others did not associate; who did not eat with them, and appeared in a state of absolute subjection. We suspected he might even be a slave; but although this is mere conjecture, he was certainly of very inferior rank.

The Jessonefe and Oku-Jessonefe possess an article of commerce, of which the Bitchys and Orotchys are totally destitute. This is whale oil; that animal abounding on the eastern coast of their islands, where we perceived as great a number as in the strait of Le Maire, though we did not see one in the narrow sea of Tartary. The greater facility of communication of the Islanders with Japan, gives the furniture of their huts an air of opulence, not visible on the continent, except in their tombs; for which the Tartars reserve all their riches. We saw no monument of that nature, thus decorated among the Segalians. But we observed there, as in the bay of Castries, images suspended from the roofs of their huts, and the master of one of the canoes in the bay of Crillon, to whom I gave a bottle of brandy, threw a few drops into the sea, before he set off, giving us to understand, this libation was an offering to the Supreme Being. But the sky appears to be the vault of his temple, and the heads of families his ministers.

It will be readily concluded, from this account, that no commercial motive can hold out an inducement for Europeans to frequent these seas. A little whale oil, and dried or smoked fish, are very trifling articles of exportation, to cover the expences of so long a voyage. I may even observe, as a general maxim, that an extensive commerce can only be carried on with a great nation; and were these articles objects of importance, a cargo of 300 tons could

could not be completed on all these various coasts, which extend more than 1000 leagues. Although the dried salmon of the bay of Castris appeared of a good quality, and it was very easy to buy it, I confess, I felt a scruple that withheld me, lest these poor people should be selling their winter provision, and perish for want when that season arrived.

We did not observe any sea otters, and though we shewed the inhabitants samples of ours, these furs seemed totally unknown to them; and they did not appear to place a higher value on them, than on the seals skins of which they make their boots. Apparently that amphibious animal is only found on the eastern coast of the northern Kuriles, which shews that its true country is to the eastward of Asia, towards the coast of America, where as I have already said, they are found in great quantities, from Oonolashka Point to San Diego, on the western coast of California. In reading the various accounts, which have given birth to so many false ideas of the immense country we have lately reconnoitred, we find many truths dispersed among them, which it is very difficult to develope. Father des Anges was certainly acquainted with these nations, and his description of the country is accurate: but situated at the southern extremity of Jessô, opposite to Japan, he could neither conceive, nor venture to suppose so great an extent of country; the strait of Tessôy of which he speaks, and which, as the Islanders informed him, was obstructed by sea-weeds, is so near the continent, as to see with the naked eye a horse feeding on the other side, and is no other than the top of the gulph we sailed into, from whence we saw Point Boutin, on the island of Oku-Jessô, stretching out towards the continent, and terminating in the sea like a sand bank a toise or two high. The accounts of Kämpfer, and the letters of Father Gaubil, also contain

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contain some truths *; but both these writers have related whatever the Japanese or Tartars told them, and they had only conversed with men too ignorant to be relied on for their accuracy. In short, the Russians denied the existence of these two islands, though more considerable than those of Britain. They confounded them with the Kuriles, and did not suppose there was any intermediate land between them and the continent of Asia †. On this supposition, the

seas

* It is for the Russians" (says Father Gaubil) to inform us, "whether large ships can pass through the strait which separates Jesso from Tartary." That enlightened Jesuit did not foresee, that this problem would be solved by the navigators of France.—*French Editor.*

† Although it cannot be supposed it will ever be attempted to rob the navigators of France of the honour of this important discovery of the land of Jesso, or Chicha Island, lying to the northward of Japan, I will point out in this place the ignorance of the Russians, relative to the existence of that island. I shall draw a proof of it from the translation of a passage in the Russian account of Kracheninikoff, at his return from a voyage to Kamtschatka, page 34 of Vol. I. 4to.

"The Kamtschadales were in possession of iron utensils before the arrival of the Russians in that peninsula, being furnished with them by means of the Japanese, who made voyages to the Kurile Islands, though they rarely stretched so far as the river Bolchaia-Reka." He adds, in support of this assertion, that "the Kamtschadales give the name of Chicha-Mann to the Japanese, because needles are called *chisch* in this language, and the Japanese were the first who taught them the use of needles made of iron and steel."

Had the Russian author, like La Pérouse, had an opportunity of visiting the islands lying to the northward of Japan, he would have found one bearing the name of Chicha; and in lieu of pursuing so ridiculous an etymology, would have confined himself to the natural origin of that name; he would have added the syllable *mann*, used in the dialect of several nations, to personify the name of their country, to Chicha, so as to signify a man of Chicha, not a needle-man.

The inference from this observation is, that the Russians having long inhabited Kamtschatka, and thus being very near neighbours to these islands, have no clear idea of the existence of the islands lying to the northward of Japan, though they frequently made voyages to the Kuriles. This is the less to be doubted, as the Russians, according to these data, take those Islanders for Japanese.

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seas of Japan and of Corea were open to their ships from Okhotsk; but this supposition would annihilate the authenticity of the voyage of the Dutch in 1634, and we may venture to assert, that the navigation of Captain Vries is the most accurate that could have been practised, at a time when the method of taking observations was extremely defective. It appears, that the Dutch endeavoured to compensate this disadvantage, by the most minute attention to their reckoning, and the accuracy of their bearings. If the strait we discovered, escaped their observation, seamen who are acquainted with foggy seas, will scarcely be surprised. The latitude and longitude of this strait were determined in our voyage with so much precision, that there no longer remains any difficulty in penetrating, by this channel, into the seas of Corea. Langle Peak, which rises more than 1200 toises above the level of the sea, and is visible in clear weather at a distance of 40 leagues, is an excellent land-mark for the southern coast of this channel, which it is more convenient to run along, than that of the north, the currents being more moderate. The exact knowledge of the geography of this part of the continent, which the fatigues of our expedition will procure to France, and other European countries, may become more immediately useful to the Russians, who may perhaps one day possess an important navigation to Okhotsk, and will cause the arts and sciences of Europe to flourish in these countries, now inhabited by wandering Tartar hords, but more particularly appropriated to bears and other animals of the forests.

I shall not attempt to explain how Jessô, Oku-Jessô, and all the Kuriles, have become peopled by a different race of men from that of the Japanese, Chi-

I am indebted for the translation of the above passage from Kracheninikoff, to Lesseps, the Russian interpreter, who accompanied La Pérouse on this voyage.—*French Editor.*

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nese, Kamtschadales, and Tartars, from whom the Oku-Jeffönese are only separated to the northward, by a narrow and shallow channel. As a traveller, I relate facts, and point out distinctions, leaving it to others to reduce them to a system. Although I did not land in the Kuriles, I am certain, from the accounts of the Russians, and the identity of the language of the Kuriles, with that of the vocabulary at the end of the present chapter, that the inhabitants of these islands, and those of Jeffö, and Oku-Jeffö, have a common origin. Though their manners and mode of life differ very little from those of the continent; nature has stamped so marked a physical difference between these two nations, as to constitute a more incontestible proof, than any medal or monument whatever, that these islands were not originally peopled from this part of the continent, and that their inhabitants are a colony of men, perhaps even strangers to Asia. Although Oku-Jeffö lies 150 leagues to the westward of the Kuriles, and it is impossible to cross in such slight vessels as their fir canoes, they may, however, easily communicate together, because all these islands, separated from each other by channels of various widths, form a kind of circle; and none of their channels presents an extent of 15 leagues. Thus it would be possible to go in canoes from Kamtschatka to the mouth of the river Segalien, by pursuing the chain of the islands as far as that of Mareckan, and passing from this last to the island of Four Brothers, Company's Land, Staten Island, Jeffö, and Oku-Jeffö, and thus to arrive at the limits of Russian Tartary. But the names of Jeffö, and Oku-Jeffö, if pronounced among these Islanders, would be unmeaning empty sounds, and are apparently Japanese words. Neither the Tartars, nor the pretended Jeffönese, and Oku-Jeffönese have any knowledge of them. The latter call their own island *Tchoka*, and the former *Chicha*. This confusion

fusion of names is very injurious to the progress of navigation; it is, at least, a totally useless tax upon the memory. I am of opinion, that when the true name of a country is once known, it ought to be scrupulously adhered to, or in default of that, the names employed by the most ancient navigators. This plan, from which I have never deviated, has been faithfully pursued in the charts we have constructed during our voyage, and if it has ever been departed from, it has arisen merely from not being acquainted with the facts, not from the ridiculous vain-glory of fabricating new names.

VOCABULARY OF THE INHABITANTS OF THE ISLAND
OF TCHOKA, FORMED AT LANGLE BAY.

Some of the words of the language of Tchoka are pronounced in the throat, but their pronunciation must be soft, resembling that of persons who speak rather thick. It is here expressed by *eh*. The *qs* at the beginning of some words, is used to express a kind of whistling, which must be sounded before articulating the syllables that follow *.

Names of the principal parts of the human body.

<i>Chy</i>	eye, the eyes.
<i>Tara</i>	the eyebrows.
<i>Quechetau</i>	the forehead.
<i>Etou</i>	the nose.
<i>Notamekann</i>	the cheeks.
<i>Tsara</i>	the mouth.
<i>Yma</i>	the teeth.
<i>Aon</i>	the tongue.
<i>Mochtchiri</i>	the chin.
<i>Téhé</i>	the beard.
<i>Qs-chara</i>	the ears.

* In all these vocabularies the French spelling is adhered to, and consequently the French pronunciation.—*French Editor.*

Chapa

<i>Chapa</i>	the hair.
<i>Ochetourou</i>	the nape of the neck.
<i>Saitourou</i>	the back.
<i>Tapinn-ehinn</i>	the shoulder.
<i>Taets jonk</i>	the arm.
<i>Tay</i>	the fore part of the arm.
<i>Tay-ha</i>	the wrist.
<i>Tay pompé</i>	the hand, and the fingers in general
<i>Tchouai pompé</i> ...	the thumb.
<i>Khouaime pompé</i> ..	the fore finger.
<i>Kmoche kia pompe</i>	the middle finger.
<i>Oista pompé</i>	the fourth finger.
<i>Para pompé</i>	the little finger.
<i>Tchame</i>	the fore and upper part of the breast.
<i>Toho</i>	the nipples.
<i>Honc</i>	the belly.
<i>Tsiga</i>	the male genitals.
<i>Chipouille</i>	the female genitals.
<i>Afforoka</i>	the buttocks.
<i>Ambe</i>	the thighs.
<i>Aouchi</i>	the knees.
<i>Tcheai</i>	the ham, or bend of the knee.
<i>Aimaitfi</i>	the legs.
<i>Oatchika</i>	the calf of the leg.
<i>Acouponé</i>	the ankles.
<i>Paraouré</i>	the upper part of the foot.
<i>Otocoukaion</i>	the heels.
<i>Ouraipo</i>	the sole of the foot.
<i>Kaina pompéam</i> ..	the great toe.
<i>Tassou pompéam</i> ..	the second toe.
<i>Tassou ha pompéam</i>	the middle toe.
<i>Tassouam</i>	the fourth and the little toe.

Names of various objects.

<i>Tchoka</i>	name of the great island they inhabit.
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Chapa

- Tanina* another name for the same, but the majority call it Tchoka.
- Chicha* name of an island or people they point out to the southward of that of Tchoka.
- Mantcheoux* nations of Tartary, near the river Amur or Segalien, and the island of Tchoka. According to the Islanders, who pointed out these people as situated to the north-west, ships may pass through the channel that divides them.
- Tchoixa* the sea.
- Kaïani or Kahani* ship, vessel.
- Hocatoûrou* canoe.
- Tacôme* thole of a canoe.
- Oukanneffi* oars, or paddles.
- Koch-Kotm* a small square vessel of beech birch, and furnished with a handle. It is used for drinking, and for baling water out of canoes.
- Ouachekakai* a kind of wooden shovel for baling water out of canoes.
- Turatte* a very long and strong leather strap, six or eight lines broad, used principally for making canoes fast.
- Soïtta* thwart of a canoe.
- Moncara* iron hatchet. M *
- Ho* a large damascened iron lance, M
- Couhou* a bow.
- Hai* common arrows, tipped with iron, shaped like a serpent's tongue, some barbed, others plain. M

* The letter M. is annexed to the articles furnished by the Mantchou Tartars, with whom they traffic.

- Tassehai* forked arrows with two branches
tipped also with iron. M
- Etanto* wooden arrows with knobs.
- Tassiro* a large cutlafs. M
- Matfirainitsi and Makiri* { small knife in a sheath, suspended
to the leather girdle which keeps
their upper garment crossed. M
- Matfiré* their name for our knives with
sheaths.
- Hakame* large ring of iron, lead, wood, or
seacow's tooth, an instrument
forced on to the thumb of the
left hand. M
- Kaine* sewing needle.
- Tchikotampé* our cravats or handkerchiefs.
- Achka* a hat or bonnet.
- Tobéka* sea calf's skin, in the form of a
long loose great coat.
- Achtoussa* a loose great coat woven with fine
birch bark, prepared with great
art.
- Séturoufs* a large loose great coat or surtout
of dog's skin.
- Tetarape* a kind of shirt of coarse stuff, and
adorned with a border of blue
nankeen round the bottom and
neck.
- Otoumouchi* small round brass waistcoat but-
tons. M
- Ochfs* leather stockings or buskins, stitch-
ed to their shoes.
- Tchirau* shoes of the Chinese shape, ter-
minating in a point very much
turned up.
- Mirauhau* a small leather bag with four twist-
ed horns, used as a pocket, and
suspended to their leather girdle.

- Tcharompé* ear-rings, generally consisting of seven or eight blue beads. M
- Tama* blue beads loose; all the natives have a decided taste and preference for this colour.
- Hierachtchinam* ... a large strong mat on which they sit and sleep.
- Achkakaroupé* small umbrella or shade in the shape of a fan, used to defend the eyes of old people from the sun.
- Hounechi* fire.
- Tamoui* a dog.
- Taipo* a musket.
- Nintou* a bucket to draw water, made of birch bark, in the same shape as ours, with its handle.
- Ouachka* fresh water.
- Chichepo* sea-water.
- Abika* small cord.
- Sorompé* large wooden spoons.
- Chouhou* copper kettle, M.
- Niffy* a rod or pole.
- Pouhau* hut or house.
- Nioupouri* the houses or the village.
- Oho* the plain where the village stands.
- Naye* the river running along the same plain.
- Tsouhou* the sun.
- Hourara* the firmament.
- Hourara haïne* ... the clouds.
- Tébaira* the wind.
- Orod* the cold.
- Tebairouha* the winter or snowy season.
- Chouman* stone, the generic term.
- Ni* trunk of a tree, and wood in general.
- Qs-sieheché* deal plank.

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ROUND THE WORLD,

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Toche unworked bark of the birch, in large pieces.

Choulaki moss, plant.

Otoroutchina herbage in general, or meadows.

Tjiboko smallage, or wild celery.

Mahouni the wild rose-tree.

Taruho the rose-tree blossoms, commonly called *dog-rose*.

Mahatfi a kind of tulip.

Pech koutou angelica plant.

Tjita a bird in general, or the singing of birds.

Qs-lari a bird's feather.

Etouchka the jack-daw, a species of crow.

Tjikaha small common swallow.

Máchi a gull, a web-footed bird, frequenting the sea shore.

Omoeh a common fly with two wings, or dipteron.

Mocomaié large common kimà cockle.

Pipa large mother-of-pearl oyster.

Otaffi harp-fish.

Toukochich salmon.

Emoé fish in general, or particular name of a species of barbel.

Chaubotín a species of carp, or fish of the carp kind.

Pauni a fish-bone, or back-bone, which they broil and preserve in heaps.

Chidarapé milt, eggs and air bladder of fish, which they also preserve.

Common words.

He and hi Yes.

Hya No.

Houaka No, that cannot be; I cannot; I will not.

<i>Ta-fa</i>	who ? what ? what is it ? an interrogative pronoun.
<i>Tap, or tapé</i>	this, that, this here, that there ; a demonstrative pronoun.
<i>Coukaha</i>	come hither.
<i>Ajbé</i>	eating (the action of.)
<i>Cbuha</i>	to drink.
<i>Mouaro</i>	to lie down, or to snore.
<i>Etaró</i>	to sleep.

Numbers.

<i>Tchiné</i>	one.
<i>Tou</i>	two.
<i>Tchè</i>	three.
<i>Yné</i>	four.
<i>Aschné</i>	five.
<i>Yhampé</i>	six.
<i>Araouampé</i>	seven.
<i>Toubi schampé</i>	eight.
<i>Tchinéli schampé</i>	nine.
<i>Houampé</i>	ten.
<i>Tchinébi kassma</i>	eleven.
<i>Toubi kassma</i>	twelve.
<i>Tchébi kassma</i>	thirteen.
<i>Ynébi kassra</i>	fourteen.
<i>Aschnébi kassma</i>	fifteen.
<i>Yhambi kassma</i>	sixteen.
<i>Araouambi kassma</i>	seventeen.
<i>Toubi schampi kassma</i>	eighteen.
<i>Tchinébi schampi kassma</i>	nineteen.
<i>Houampébi kassma</i>	twenty.
<i>Houampébi kassma tchiné-ho</i> . . .	thirty.
<i>Yné houampé touch-ho</i>	forty.
<i>Aschné houampé taich-ho</i>	fifty.
<i>Tou aschné houampé taich-ho</i> . . .	one hundred.

If in this language there is any difference between the singular and the plural, it is not expressive by their pronunciation.

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ROUND THE WORLD.

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I neither saw these islanders dance nor sing, but they all produce pleasing sounds from the principal stalk of a large kind of celery, or species of Euphorbium, open at each extremity. They blow at the small end, and their tones are a tolerable imitation of the softer notes of a trumpet. They play no determinate air, but a mere succession of high and low notes, the compass of which may extend to an octave and a half, or two octaves, that is to 12 or 16 tones. We did not perceive, they had any other musical instrument.

CHAP. XXII.

ANCHORAGE IN THE BAY OF AWATSCHA—OBLIGING RECEPTION OF LIEUTENANT KABOROF—ARRIVAL OF M. KASLOFF-UGRENIN, GOVERNOR OF OKHOTSK, AT THE HARBOUR OF ST. PETER AND ST. PAUL—HE IS FOLLOWED ON BOARD BY M. SCHMALEFF AND THE UNFORTUNATE IVACHKIN, WHO EXCITES IN US THE MOST LIVELY INTEREST—KIND OFFICES OF THE GOVERNOR TOWARDS US—A BALL AMONG THE KAMTSCHADALES—A COURIER ARRIVES FROM OKHOTSK AND BRINGS US LETTERS FROM FRANCE—WE DISCOVER THE TOMB OF M. DE LA CROYÈRE, TO WHICH, AND TO THAT OF CAPT. CLERKE, WE AFFIX INSCRIPTIONS, ENGRAVED ON COPPER—NEW POLITICAL VIEWS OF M. KASLOFF, RELATIVE TO THE ADMINISTRATION OF KAMTSCHATKA—WE OBTAIN PERMISSION TO SEND OUR INTERPRETER, WITH OUR PAPERS, TO FRANCE—DEPARTURE FROM THE BAY OF AWATSCHA.

WE had not yet moored before the harbour of St. Peter and St. Paul, when we received a visit from the *Toyon*, or chief of the village, and many other

other inhabitants, who brought us each some presents of salmon or skate, and offered their services in hunting boars, or shooting the wild ducks which covered the ponds and rivers. We accepted these offers, lent them our muskets, gave them powder and shot, and had plenty of game during our whole stay in the Bay of Awatscha. They made no demand of any compensation for their labour, but we had been so abundantly furnished at Brest, with articles of great value to the inhabitants of Kamtschatka, that we insisted on their accepting some marks of our gratitude, and our treasures permitted us to proportion these rather to their wants, than to the presents they brought us. The government of Kamtschatka had been totally changed since the departure of the English. It was now a mere province to that of Okhotsk, and the various posts of this peninsula had their respective commandants, who were accountable only to the commandant-general of Okhotsk. Capt. Schmaleff, who succeeded Major Behm, *pro tempore*, still remained in that country with the title of commandant of the Kamtschadales. M. Reinikin, the actual successor of Major Behm, who arrived at Kamtschatka soon after the departure of the English, had been governor only during four years, having returned to Petersburg in 1784. We learnt these particulars of Lieutenant Kaborof, who commanded at the harbour of St. Peter and St. Paul, having under his orders a serjeant and a detachment of 40 soldiers, or cossacks. This officer paid us the most unlimited attention and politeness; and his personal services, as well as those of his detachment, and every thing he possessed, were at our disposal. He would not even permit me to send an officer to Bolcheretsk, where M. Kasloff-Ougrenin, governor of Okhotsk, then on a tour through this province, most fortunately happened to be. He informed me, the governor would come within a few days

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days to St. Peter and St. Paul, and probably was already on the road; adding that this journey was a much more considerable expedition than we could imagine, as the season did not admit of going in a sledge, and it was absolutely necessary to perform it partly on foot and partly in canoes, up the rivers of Awatticha and Bolcheretk.

M. Kaborof offered, at the same time, to send a cosack to carry my dispatches to M. Kasloff, of whom he spoke with an enthusiasm and a satisfaction, in which we could not but participate. He was continually rejoicing that we should have occasion to communicate and treat with a gentleman, whose education, manners, and knowledge, were equal to those of any officer in the Russian empire, or even any other nation. M. de Lesséps, our young interpreter, spoke the Russian language with as much facility as his native tongue. He translated the conversation of the lieutenant, and in that language wrote a letter in my name to the Governor of Okhotsk, to whom I also wrote in French. I observed to him, that the third voyage of Captain Cook having published to all the world the hospitality of the government of Kamtschatka, I flattered myself with meeting the same reception as the English navigators, the object of our voyage being, like theirs, the general utility of all maritime nations. M. Kasloff's answer could not arrive in less than five or six days; and our good lieutenant told us, he only anticipated the orders of that officer and the Empress of Russia, by desiring us to consider ourselves as in our own country, and to dispose freely of every thing the place afforded. His countenance, his expressions, and his manners, evinced, that had he the power miraculously to change the face of Nature, these barren mountains and undrained marshes would have been converted into regions of enchantment and felicity.

A report was spread, that M. Kasloff had no letter

for us, but that the former Governor of Kamtschatka, Mr. Steinheil, whom M. Schmaleff preceded as captain-ispravenik, or inspector of the Kamtschadales, and who resided at Verkhnei-Kamtschatka, might have some; and immediately on this simple rumour, which appeared almost destitute of probability, he sent off an express, who had to go above 150 leagues on foot. M. Kasloff knew how desirous we were to receive letters, M. de Lessops having communicated to him our concern that no packet addressed to us had arrived at St. Peter and St. Paul. He appeared equally afflicted with ourselves, and expressed so much solicitude and care, that he seemed almost to say he would go himself to Europe to seek our letters, if there were any hopes of finding us again at his return. The serjeant and all the soldiers shewed the same anxiety to serve us; and Mrs. Kaborof behaved to us with the most engaging politeness. Her house was open to us at all hours of the day, and tea and every refreshment the country afforded were offered us. Every one was desirous to make us presents; and, notwithstanding the rule we had established of not accepting any, we could not resist the pressing solicitations of Mrs. Kaborof, who obliged our officers as well as M. de Langle and myself, to accept some skins of fables, rein-deer, and foxes, though far more useful to those who presented them than to us, who were about to return towards the tropics. Fortunately we had the means of discharging the obligation, and we urgently solicited permission to offer, in our turn, such articles as could not be found at Kamtschatka. If, however, ours were richer than our host's, it was impossible for our manners to exhibit that unaffected and engaging kindness, which surpasses every kind of gift.

I expressed to M. Kaborof, through M. de Lessops, that I wished to form a little establishment on shore, to lodge our astronomers, and place a quadrant
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and pendulum. The most commodious house in the village was immediately offered us, and not visiting it till some hours after this request, we thought we might accept it without impropriety, as it appeared uninhabited; but we learned afterwards that the lieutenant had displaced the corporal, his secretary, who was the third person in rank in the country, to make room for us. The Russian discipline is such, that their movements are performed with as much promptitude as the evolutions of military exercise, and are only ordered by a motion of the head.

Scarcely had our astronomers erected their observatory, before our naturalists, who were no less assiduous and zealous in their pursuits, were desirous of making an excursion to the volcano, whose distance appeared to be less than two leagues, although it was at least eight to the foot of the mountain, which was almost entirely covered with snow, and at the summit of which was the crater. The mouth, which was turned toward Awatscha, continually threw out volumes of smoke; and only once during the night, we saw bluish and yellow flames, which, however, rose but to a very inconsiderable height.

The zeal of M. Kaborof was equally ardent for our naturalists as for our astronomers. Eight coffacks were immediately ordered to accompany Messrs. Bernizet Mongès and Receveur. The health of M. Lamanon was not yet sufficiently re-established to participate in such an expedition. Never, perhaps, was so arduous an enterprize undertaken for the advancement of the sciences; and none of the learned men, English, Germans, or Russians, who had been at Kamtschatka, had attempted so difficult an enterprize. The mere aspect of the mountain led me to believe it inaccessible. We perceived no verdure whatever, and its sides were extremely steep. Our intrepid adventurers, however, set off with the hope of vanquishing all these difficulties.

difficulties. The coffers were charged with their baggage, which consisted of a tent, various furs, and provisions for each of them during four days. The honour of carrying the barometers, thermometers, the acids, and other articles for making observations, was reserved for the naturalists themselves, who dared not confide these fragile instruments to any other hands. Their guides were only to conduct them to the foot of the mountain; a prejudice, almost as ancient as Kamtschatka itself, prevailing among the Kamtschadales and the Russians, that the vapours proceeding from the mountain must inevitably suffocate all who are rash enough to ascend it. They hoped, no doubt, that our naturalists would, like them, stop at the foot of the mountain; a few glasses of brandy given them before they set out having probably excited in them this tender interest in their safety, and made them set off with much gaiety in this idea. Their first halting place was in the midst of the woods, six leagues from the harbour of St. Peter and St. Paul. Till then they had travelled over a tolerably easy ground, covered with plants and trees, of which the greater number were of the birch kind. The fir trees they met with were stunted, and almost dwarfs. One of these species bears cones, of which the small nuts are good to eat; and from the bark of the birch flows a very wholesome and agreeable beverage, which the Kamtschadales carefully receive in vessels, of which they drink great quantities. Berries of all kinds, and of every shade of red and black, offered themselves at every step to our travellers. Their taste was generally rather acid, but with sugar they are very agreeable to the palate.

At sun-set the tent was pitched, the fire lighted, and every thing prepared for passing the night with a dispatch unknown to the luxurious inhabitants of towns and cities. They took the greatest precautions that the fire should not communicate to the

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trees of the forest. So great a misfortune could not be expiated by a few stripes bestowed on the backs of the cossacks, because fire puts all the fables to flight, and after such an accident, no more are to be found during the whole Winter. This is the season for hunting these animals, whose skin constitutes the whole riches of the country. It is given in exchange for all the commodities they have occasion to purchase, and must also pay the balance of their annual tribute to the imperial treasury. That crime, therefore, must be enormous, which would deprive the Kamtschadales of all these advantages. Accordingly the cossacks took the greatest pains to cut down the grass round the fire, and dig a deep hole before their departure to bury the ashes, which they extinguished by covering them with earth, moistened with a great quantity of water. During this day's journey, the only quadruped they saw was a hare, which was almost white. They saw neither bears, argali (mountain-sheep) nor rein-deer, though these animals are very common in that country. The next morning at day-break they continued their journey.

A great quantity of snow fell during the night, and, which was still worse, a thick fog covered the volcanic mountain, at the foot of which our naturalists did not arrive till three in the afternoon. Their guides stopped, according to their agreement, as soon as they arrived at the confines of vegetation, pitched their tents, and lighted a fire. This night's rest was highly necessary previous to undertaking the fatigues of the following day. Messrs. Bernizet, Mongès, and Receveur, began to ascend the mountain at six o'clock in the morning, and did not stop till three in the afternoon, when they arrived at the edge of the crater, but at its lower part; having been frequently obliged to support themselves with their hands among these broken rocks, between which

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were very dangerous precipices. All the substances of which this mountain is composed are lavas more or less porous, and almost in the state of pumice stone. On the summit they met with gypseous substances and chrySTALLIZATIONS of sulphur, though much less beautiful than those of the peak of Teneriffè. In general the shorls and all the other stones appeared inferior in beauty to those of this ancient volcano, which has not produced an eruption during the last century; whereas that of Kamtschatka threw out substances in 1778, during the stay of Captain Clerke in the bay of Awatscha. However they brought away some pretty fine specimens of chrysolite, though they met with much bad weather, and traversed such difficult roads, that it is astonishing they were able to carry additional weights, besides their barometers, thermometers, and other instruments. Their view never extended beyond a musket-shot except during a few minutes, when they perceived the bay of Awatscha, and our ships, which from that elevation appeared of less magnitude than small canoes. Their barometer fell at the edge of the crater to 19 inches, 11 lines, and $\frac{1}{10}$, while ours, on board our ships, where we made observations every hour, was at the same time at 27 inches, 9 lines, $\frac{1}{10}$. Their thermometer was $2\frac{1}{2}$ below the freezing point, and differed 12 degrees from the temperature at the water side. Thus, admitting the calculation of those natural philosophers who rely on this method of measuring the height of mountains, with corresponding allowances for the state of the thermometer, our adventurers must have ascended about 1500 toises above the level of the sea*; a most prodigious height, considering the difficulties they had to encounter. But they were so embarrassed by the fogs, that they determined to renew their visit the next day if the weather was more favourable, for the difficulties they had encountered only increased their zeal, and they de-

* See the note on vol. i. page 15.—*French Editor.*

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scended the mountain, and returned to their tents full of this courageous resolution. The night was then drawing in, and their guides had already been offering up their prayers for their souls, and began to drink the liquors which they considered as useless to the dead. The lieutenant being informed of this precipitation, at their return ordered 100 stripes to be inflicted on the most culpable, which they received before we were apprised of it, or had an opportunity of interceding for their pardon. The night that followed this journey was tremendous; the fall of snow redoubled, and in a few hours was several feet deep. It was therefore impossible to attempt executing their intended plan, and they arrived the same evening at the village of St. Peter and St. Paul, after a journey of eight leagues, which on their return was less fatiguing from the natural declivity of the ground.

While our mineralogists and astronomers so well employed their time, we filled our casks with water, our hold with wood, and cut and dried hay for the live stock we expected; for we had only a single sheep remaining. The lieutenant had written to M. Kasloff, requesting him to collect as much cattle as possible, for he calculated with grief, that it would be impossible for us to wait for those which the governor had doubtless ordered to be brought from Verkhnei, and which would require six weeks to arrive.

The indifference of the inhabitants of Kamtschatka towards their flocks has retarded their increase in the southern part of this peninsula, or with care they would soon equal Ireland in number. The finest thick grass grows in natural meadows to the height of more than four feet, and immense quantities of forage might thence be got in against the winter, which in this climate lasts two or three months. But the Kamtschadales are incapable of such care; barns and immense stables, sheltered from the cold, would then become necessary, and it appears

appears to them more convenient to live on the produce of the chase, and particularly on salmon, which comes every year like the manna in the desert, at the same season, to load their nets and secure their annual subsistence. The Cossacks and Russians, more soldiers than husbandmen, have adopted the same mode. The lieutenant and serjeant alone had little gardens, planted with potatoes and turnips: their exhortation and example could have no influence on the rest of their fellow-countrymen, who were by no means averse to partake with them, but who would not, to have them of their own, take any other trouble than to gather them, had nature spontaneously offered them in the fields, like sarranne, garlick, and particularly bay-berries, of which they make a pleasant drink, and sweetmeats which they keep for the winter. Our European seeds were in a very good state of preservation, of which we gave a great quantity to the lieutenant and serjeant, hoping to hear one day that they had completely succeeded in rearing them. In the midst of all our labours we had yet time for diversions, and made different hunting parties on the rivers Awatscha and Paratounka, for our ambition was to kill bears, rein-deer, or argali, though frequently obliged to be contented with a few ducks or teal, which were not worth our long and arduous excursions. Our friends the Kamtschadales made us more happy, bringing, during our stay, four bears, an argali, and a rein-deer, with such a quantity of divers and puffins, that we distributed them among the whole crew, who were already tired of fish. One cast of the net which we made near our frigates, would have been sufficient for the support of six ships: but the kinds of fish were not much varied, consisting chiefly in small cod, herring, plaice and salmon. I ordered a few barrels only to be salted down, as I was informed that all the fish were so small and tender, that they could

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could not resist the corrosive activity of the salt, which it would be better to keep for the pigs we should meet with in the islands of the South Sea.

While we passed a few days, which seemed so pleasant after the fatigues we had undergone of making discoveries on the coasts of Oku-Jesso and Tartary, M. Kasloff set off for the harbour of St. Peter and St. Paul, but he travelled slowly from a wish to observe every thing, the object of his mission being for the establishment of the best administration possible in this province, knowing that no general plan could be formed to this effect without examining into the produce of the country, and what a careful and proper cultivation congenial to the climate renders it susceptible of. He likewise wished to examine the stones, minerals, and all the substances of the soil of the province generally. His observations detained him some days at the hot springs, twenty leagues from St. Peter and St. Paul, from whence he brought different kinds of stones and other volcanic matters, with a gum which he gave to M. Monges to be analysed: he frankly said on his arrival, that having been apprized by the public prints that several able naturalists had been embarked on board our frigates, he had a desire to take advantage of so fortunate a circumstance, to make himself acquainted with the different substances of the peninsula of Kamtschatka from his own observation. The politeness and manners of M. Kasloff were absolutely those of the best educated inhabitants of the first cities of Europe: he spoke French and knew something of all the objects of our researches, as well in geography as natural history: we were surprised to find an officer whose merit would have distinguished him in all the nations of Europe, placed in a savage country, at the remotest part of the world.

It is easy to conceive that the ties of intimacy must soon be formed between Colonel Kasloff and

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us. The day after he arrived, he came to dine on board my ship, together with M. Schmaleff and the vicar of Paratouunka. I gave him a salute of thirteen guns. Our countenances, that bespoke a greater degree of health than even what we enjoyed at our departure from Europe, extremely surprised him. I told him we were partly indebted to it for our own care, and much more to the abundance in which we lived in his government. M. Kasloff seemed to partake of the happiness of our situation; but evinced the most sensible pain in the impossibility of getting more than seven oxen before the time fixed upon for our taking leave, which was too near at hand to think of procuring them from the river of Kamtschatka, which was more than a hundred leagues distant from St. Peter and St. Paul. He had now been six months in expectation of the ship which was to bring corn and other necessaries to the garrison of this province from Okhotsk, and he presumed with grief that some accident had happened to it: our surprise at having no letters diminished, when we learnt from him that no courier had been received since he left Okhotsk, adding that he was going to return thither by land, keeping along the coast to Okhotsk, a journey almost as long, or at any rate more difficult than that from Okhotsk to Peterburgh.

On the morrow the governor and all his *suite* dined on board the *Astrolabe*, when he was likewise saluted with the same number of guns, but he fervently beseeched us to stand no more upon compliment, that we might in future see each other with greater freedom and pleasure.

It was not in our power to make the governor take the price of the bullocks; in vain we represented that at Manilla, notwithstanding our close alliance with Spain, we had paid the whole of our expences, M. Kasloff telling us that the Russian government acted on different principles, and that he only regretted

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ted having so few beasts at his disposal. He invited us the following day to a ball, which he gave on our account to all the Kamtschadale as well as Russian women at St. Peter and St. Paul. If the assembly was not numerous, it was at least extraordinary: thirteen females, cloathed in silk stuff, ten of whom were Kamtschadales, with broad faces, little eyes, and flat noses, were seated on benches round the apartment; who as well as the Russians had silk handkerchiefs bound round their heads, something like the Mulatto women in our colonies: but the sketches of M. Duché will give a better idea of their dresses than I can possibly do by description. The ball was opened by Russian dances, to very agreeable airs, which were not unlike the Cossack danced at Paris a few years ago. The Kamtschadale dances then succeeded, which can only be compared to those of the *convulsionnaires*, at the famous tomb of St. Medard. The only requisites for a dancer in this part of Asia are arms, shoulders, and hardly any legs; the Kamtschadales, by their convulsed and contracted movements, inspiring all the spectators with a most painful sensation, which is excited in a still greater degree by the doleful cry which issues from the cavity of the throat of those dancing, and which is the only music they have for keeping time with their movements. Their fatigue during this kind of exercise is such, that they are most disgustingly covered with sweat, and lie extended on the ground without being able to get up again of themselves. The abundant exhalations which their body emits, perfumes the apartment with a smell of oil and fish, to which European nostrils are too little accustomed to know the sweets of. The dances being always imitative, and in some respect only pantomimes, I asked what two women in particular meant to express by so violent an exercise? I was told it was a representation

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of a bear-hunt; the woman who rolled about on the ground being the animal, and her that run round her the huntsman: but could the bears speak, and be spectators of such a pantomime, they would have great reason to complain of so stupid an imitation.

This dance, equally fatiguing to the dancers and lookers on, was hardly finished, when a joyful shout announced the arrival of a courier from Okhotk, charged with a great box full of letters for us. The ball was interrupted, and each dancer sent away with a glass of brandy, a refreshment worthy of these Terpsichores. M. Kasloff perceiving our impatience for learning news, in which we were all interested, from Europe, earnestly intreated us not to defer that pleasure. He put us into his own room and retired, that he might not check the effusion of the different sensations which might affect us, according to the accounts each might receive from his family or friends. They were happy for all, but particularly so for me, who had been promised, by a favour to which I could never have aspired, the rank of commodore. The congratulations which every one was eager to make soon came to the ears of M. Kasloff, who insisted on celebrating this event by a discharge of the whole of his artillery: never while I live shall I forget the tokens of friendship and regard I received from him on this occasion. I did not pass a moment in his company which was not marked by some traits of kindness or attention; and it were useless to say, that from the time of his arrival all the inhabitants of the country hunted and fished for us alone, who could not near consume the quantity of provisions. To this he added every kind of present he could think of for M. Langle and myself; he compelled us to accept a Kamtschadale sledge for the King's collection of curiosities, and two royal eagles for the *menagerie*, besides several fables. We in our turn offered him whatever we could think of that

that would be either useful or agreeable, but we were rich alone in what regarded barter with the savages, and had nothing worthy his acceptance. We begged him to accept the account of Cooke's third voyage, which seemed to be a great satisfaction to him, having in his retinue almost all the personages which the editor had introduced, M. Schmaleff, the worthy vicar of Paratounka, and the unfortunate Ivaschkin; he translated every thing which related to them, who repeated at each time that all was told with the strictest regard to truth. The serjeant alone, who at that time commanded at St. Peter and St. Paul, was dead. The others were in the best state of health, and resided still in the country, except Major Behm, who had returned to Petersburg, and Port, who resided at Irkoutsk. I testified to M. Kasloff my surprise at finding the old Ivaschkin at Kamtschatka, the English accounts giving out that he had at last got leave to go and reside at Okhotsk. We could not but take the most lively concern at this unfortunate man's fate, whose only fault consisted in some indiscreet observations on the Empress Elizabeth, at getting up from a party at table, where the wine had overpowered his reason, at a time when under twenty years of age, an officer in the guards of a distinguished family in Russia, and amiable deportment, which neither time nor misfortunes could change: he was degraded and banished into the wilds of Kamtschatka, after having received the knout, and had his nostrils slit. The Empress Catherine, whose kindness extended even to victims of the preceding reign, pardoned this unfortunate man many years ago: but an abode of more than 50 years in the vast forests of Kamtschatka, the bitter remembrance of the disgraceful punishment he underwent, and a secret sentiment of hatred, perhaps, of an authority which could so cruelly punish a fault, the circumstances of which might be pleaded in ex-

tenuation; these several motives rendered him insensible to this tardy act of justice, and he proposed going to Siberia to die there. We begged him to accept of some tobacco, powder, lead, cloth, and generally speaking every thing which we thought might be of use to him. He was brought up at Paris, the language of which he had some recollection of, and was at no loss for words to express his gratitude to us. M. Kasloff he loved as a father, accompanying him in his voyage through affection, and the good hearted governor had a regard for him, which so operated on his mind, as to make him forget his misfortunes*. He was so kind as to point out to us the tomb of M. de la Croÿère, (whom he had seen interred at Kamtschatka in 1741) on which we placed the following inscription, cut in brass, the composition of M. Dagelet, who was, like himself, a member of the Academy of Sciences.

"Here lies Louis, de l'Île de la Croÿère, Member
"of the Royal Academy of Sciences at Paris, who
"died in 1741, on his return from an expedition undertaken by order of the Czar to explore the coasts
"of America: astronomer and geographer, the rival
"competitor of two brothers, famous in those sciences,
"he merited the lamentations of his country. In
"1786 the Count de la Pérouse, commanding the

* The remembrance and disgrace of an unjust punishment so worked on the unhappy Ivafchkin, as to determine him to hide himself from the eyes of strangers, and it was not for a week after the two frigates came in that Lesseps could find him out. This interpreter, feeling for his situation, made La Pérouse acquainted with it, who, admiring the character of an old man whose misfortunes he respected, begged to see him, which he only succeeded in by the power Colonel Kasloff had over his mind inducing him to quit his retreat. The agreeable disposition of La Pérouse soon inspired Ivafchkin with the greatest confidence, who, always thankful for the favours he received, gave still more lively testimonies of his gratitude, when the French commodore made him useful presents, of which he was really in the most absolute want.

This fact, which Lesseps has several times informed me of, could not be omitted here.—*French Editor.*

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"King's frigates the Bouffole and Astrolabe, consecrated his memory, by giving his name to an island near the places this learned man had visited."

We likewise asked M. Kasloff's permission to engrave on a plate of the same metal an inscription on the tomb of Captain Clerke, which was only pencilled on wood, too perishable a substance to commemorate to perpetuity so estimable a navigator. The governor had the kindness, in addition to his leave, to promise to raise without delay a monument more worthy of these two celebrated men, who fell under their laborious exertions, far distant from their native country. From him we learnt that La Croyère was married at Tobolsk, where his posterity resides in great respect.

The history of Behring's and Captain Tschirikow's voyages were well known to M. Kasloff, who told us that M. Billings was on that account left at Okhotsk, charged by the state with the construction of two ships to continue the discoveries of the Russians in the North Sea. He had given orders that every possible means should be used for the acceleration of that expedition; but his zeal, good-will, and anxiety to fulfil the views of the Empress, could not overcome the obstacles which he must meet with in a country as wild as on the first day of its discovery, and in which the rigour of the climate suspends all work during more than eight months of the year. He conceived it would have been better œconomy, and much more speedy, to send M. Billings to some port in the Baltic, where all his wants might be supplied for many years to come.

We took a plan of the bay of Awatscha, or strictly speaking, we verified that of the English, which is very accurate, and from which M. Bernizet made a most elegant drawing, which he begged the governor's acceptance of. M. Blondela offered him also a copy of the view of the *ostrog*, or town, and the

Abbés Mongès and Receveur made him a present of a small box of acids to analyse the waters, and gain a knowledge of the different substances of which the soil of Kamtschatka is composed. Chemistry and mineralogy were sciences not unknown to M. Kasloff; he had a particular turn for chemical labours, but he informed us of what, from the evidence of reason, it is easy to conceive, that in an uncultivated country, before troubling itself about minerals, the first care of a wise and enlightened administration must tend towards procuring bread for its inhabitants by accustoming the indigent to cultivation. The vegetation of the land bespoke its great fertility, and he had no doubt but that instead of wheat, which would not thrive on account of the cold, they should have abundant harvests both of barley and rye. He made us take notice of the delightful appearance of many little fields of potatoes, the seeds of which came from Irkoutsk many years ago, and he proposed adopting certain gentle methods to make the Russians, Cossacks, and Kamtschadales till the ground.

The small pox in 1769 took off three fourths of its whole inhabitants, which is at the present day reduced throughout the whole peninsula to less than 4000 natives, which will soon disappear entirely, by the frequent intermarriages of the Russians and Kamtschadales. A mongrel race, more laborious than the Russians, who are good for nothing but soldiers, much stronger, and in form less degrading to nature than that of the Kamtschadales, will be the produce of them, and succeed the old inhabitants. The natives have already abandoned the holes in which they buried themselves, like badgers, the whole winter, and where they inhaled an infectious air which brought on many diseases. The richer part of them now build *ibas*, or log-houses, after the Russian manner; their form is exactly that of our peasants' cottages, divided into three small rooms;

rooms; a brick stove warms them, and keeps up a heat of more than 30 degrees, which is insupportable to persons not accustomed to it. The others pass their winter, like summer, in *balagans*, which are a kind of pigeon-houses, of wood, covered with thatch, elevated on poles twelve or thirteen feet high, where the women as well as the men have to climb up very steep ladders. But the latter sort of houses will soon disappear, the *Kamtshadales* being of an imitative mind, adopting almost all the customs of their conquerors. The women are already coifed, and almost entirely clothed in the Russian manner, whose language prevails in all the *ostrogs*, which is very pleasant, each *Kamtshadale* village having before spoke a different jargon, the inhabitants of one hamlet not understanding those who resided in the neighbouring one. To the praise of the Russians it may be said, that notwithstanding they have established a despotic government in these rugged climates, it is tempered by principles of such gentleness and equity, that no inconveniences are felt from it. The Russians have no atrocity to reproach themselves with, like the English at Bengal, or the Spaniards at Peru and Mexico. The impost raised on these *Kamtshadales* is so light, that it can only be considered as a tribute of gratitude, the produce of half a day's chase paying it for a whole year. It is surprising to see in these huts, more miserable to look at than the poorest cottage in the mountainous part of our country, a circulation of pieces which appear so much the more considerable, as existing only among a small number of the inhabitants; they consume so little of the produce of Russia and China, that the balance of trade is absolutely in their favour, and they must necessarily receive the excess due to them in roubles. Skins are much higher at *Kamtchatka* than Canton; which proves that hitherto the markets of *Kiatcha* have not felt the advan-

tages of the new opportunity for the disposal of wares which is opened in China, the Chinese merchants doubtless having sufficient address to draw away these furs in an insensible manner, and thus gain immense wealth; for at Macao they bought of us for the moderate price of ten piastres, what at Pekin is worth a hundred and twenty. An otter skin sells at St. Peter and St. Paul for 30 roubles; that of a sable for three or four, but the price of a fox skin cannot be fixed: I do not speak of the black foxes, which are too rare to be counted on, and are sold at upwards of a hundred roubles. The white and grey vary from two to twenty roubles, according as they approach in colour to the black or brown: these last only differ from those of France in the softness or thickness of their skin.

The English, who by the happy constitution of their company, may give the private commerce of India all the activity it is susceptible of, sent last year a small vessel to Kamtschatka; it was fitted out by a Bengal house, and commanded by Captain Peters, who transmitted to Colonel Kasloff a letter, written in French, of which he gave me a reading; desiring, in the close alliance between the two crowns in Europe, permission to trade to Kamtschatka, by carrying there the different produce of India and China, as well in stuffs as sugar, tea, and arrack, and receiving payment in the furs of the country. M. Kasloff was too much enlightened not at once to perceive that this proposition would be very ruinous to the commerce of Russia, which advantageously sold the same things to the Kamtschadales, which advantage was still greater on the skins the English wanted for exportation: but he knew at the same time that certain limited permits had sometimes been given, to the detriment of the metropolis, for the increase of a colony, which might afterwards enrich the mother country, when it became old enough to be no longer in want of foreign trade: these considerations prevented

vented M. Kasloff's decision of the question, and he permitted the English to lay this proposition before the court of Petersburg, aware that should this request be granted, the consumption of Chinese and Indian commodities was too small, and too advantageous a market for skins was opened at Kiatcha ever to let the Bengal merchants pursue this speculation with profit. Besides, the vessel which brought this commercial proposition was wrecked a few days after its departure from the bay of Awatscha, on Copper Island, and only two men saved, with whom I conversed, and furnished with cloaths, which they stood in the greatest need of: so that Captain Cook's ships and ours were the only ones that had hitherto visited this part of Asia without accident.

I should not be justified in withholding from the reader some more particulars relating to Kamtschatka, if the works of Coxe and Steller left any thing to be wished for*. The editor of Captain Cook's third voyage has drained these sources, and in an interesting manner recapitulated all that relates to this country, on which much more has already been written than on many of the interior provinces of Europe, the climate and produce of which may and must be compared to the coast of Labrador, about the straits of Belle-Isle, but the men, like the animals, are very different. The Kamtschadales appeared to me to be the same people as those of the Bay de Castries, on the coast of Tartary; their gentleness and probity is the same, and their physical form very little different: they should therefore no more be compared to the Esquimaux, than fables to the marten of Canada.

The bay of Awatscha is certainly the finest, most commodious, and safest that can possibly be

* Some very interesting details, which deserve to be joined to those of Coxe and Steller, have been furnished us by Lesseps, in his interesting travels from Kamtschatka to France. See the end of vol. ii.

met with in any part of the world. Its mouth is narrow, and ships would be compelled to go under the guns of the fort which might be erected there. It is excellent holding ground, the bottom being of mud. Two fine harbours, one on the east, the other on the western coast, would contain all the ships of England and France.

The rivers of Awaticha and Paratounka empty themselves into this bay, but they are impeded by sand-banks, and can only be entered at high water. The village of St. Peter and St. Paul is situated on a tongue of land, which, like an artificial bank, forms behind the village a little harbour, inclosed like a circle, wherein three or four dismantled ships might lie during the winter. The mouth of this sort of basin is less than 25 toises wide; than which nothing in nature can be more secure or convenient. It is on the side of this basin that M. Kasloff proposes marking out the plan of a town, which shall one day be the capital of Kamtschatka; and perhaps the grand centre for commerce with China, Japan, the Philippines, and America. A vast lake of soft water is to the north of the site of this projected city, and at only three hundred toises distance flow many little brooks, the junction of which would facilitate the bringing hither of all the commodities necessary for a large establishment. M. Kasloff knew the value of these advantages; but "before every thing else," repeated he a hundred times, "we must have bread and arms to work with, and we have now very little of either." He nevertheless gave orders for announcing that an union of several districts, with that of St. Peter and St. Paul, was near at hand, where he intended to build a church immediately. The Grecian religion has been established among the Kamtschadales without persecution, without violence, and with extreme facility. The vicar of Paratounka is the son of a Kamtschadale and

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and Russian ; he utters his prayers and catechism with a good nature well adapted to the taste of the natives, who repay his cares by offerings or alms, but pay no tythes. By the Grecian rites a priest is permitted to marry, whence, it may be concluded, that the manners of the clergy are better. I think them very ignorant ; and it is impossible for me to suppose other than they will long remain so. The clergyman's wife, daughter, and sister, were the best dancers of the women, and appeared to enjoy the best state of health. This good priest knew that we were thorough catholics, which occasioned us a plentiful sprinkling of holy water ; and he likewise made us kiss the cross, which was borne by his clerk. These ceremonies took place in the middle of the village ; his parsonage was under a tent, his altar in the open air : but his residence was generally at Paratounka, and he only came to St. Peter and St. Paul to pay us a visit.

He gave us many particulars of the Kuriles, which was likewise in his cure, whither he went once a year. The Russians have found it more convenient to substitute numbers for the ancient names of these islands, on which authors have widely differed ; thus they say, the first, second, &c. to the twenty-first, which last terminates the pretensions of the Russians. According to the priest's account this might be the island of Mareckan ; but I am not certain, as he was very diffuse, notwithstanding we had an interpreter that understood Russian as well as French : but M. de Lesseps was of opinion that the vicar did not know what he meant himself. Nevertheless these are the particulars, in relating which he did not vary, and which may be regarded as nearly certain. Of the twenty-one islands belonging to Russia, only four are inhabited, which are the first, second, third, and fourth : the two latter could be considered only as one, as the inhabitants of the third spend all the winter

winter on the fourth, and return again to the third in summer; the others are absolutely uninhabited, the islanders only landing there in canoes to hunt otters and foxes. Many of the latter isles are only islots, or large rocks, where no wood grows. The currents are very strong between the islands, at the mouth of the channels, some of which are obstructed by rocks level with the sea. The priest never travels from Awatscha to the Kuriles but in a canoe, which the Russians call *baidar*; and he told us he was frequently on the point of being cast away, and, above all, dying through hunger, having been driven out of sight of land; but is thoroughly convinced that his holy water and stole protected him from danger. The inhabitants of the four inhabited islands make together not more than 1400: they are very hairy, with long beards, and subsist on seals, fishing and hunting: they have just been freed for ten years from paying the tribute to Russia, the otters on those islands becoming very scarce: they are for the rest good, hospitable, and docile, and have all embraced the Christian religion. The more southern independent islanders sometimes cross the channels, which separate them from the Russian Kuriles, in canoes, to exchange Japanese merchandise for skins. These islands are comprised in M. Kasloff's government; but from the difficulty of getting thither, and their little consequence to Russia, he did not intend to visit them; and though he regretted having left a chart of these islands behind him at Bolcheretsk, he still appeared to repose little confidence in it; he, however, placed so much in us, that we could, in our turn, have wished to give him the particulars of our voyage: his great delicacy, with respect to this, merits our warmest praise.

We gave him, nevertheless, a slight sketch of our expedition; not failing to inform him that we had doubled Cape Horn, visited the north-west coast

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of America, China, and the Philippines, from whence we arrived at Kamtschatka. We did not suffer ourselves to go further into particulars, but I assured him that if our voyage was ordered for publication, I would send him one of the first copies. I had already obtained permission to forward my journal to France by M. de Lesseps, our young Russian interpreter. My confidence in M. Kasloff and the Russian government was such, that I should certainly have suffered no uneasiness had I been obliged to trust my packets to the post; but I thought I should render my country a service by giving M. de Lesseps an opportunity of knowing, from his own observation, the Russian empire, where he might very likely one day replace his father, our consul-general at Petersburg. M. Kasloff obligingly told me that he accepted him as his aid-de-camp as far as Okhotsk, from whence he would facilitate his means of reaching Petersburg; and from that instant he became part of his family. Politeness so tender and amiable, is more immediately felt than expressed, making us regret the time we passed in the bay of Awatscha, while he was at Bolcheretsk.

The cold weather reminded us that it was time to think of being gone; the earth, which on our arrival on the 7th of September, was covered with the most beautiful verdure, being now as yellow and burnt up as it is in the vicinity of Paris at the end of December; and all the mountains, two hundred toises above the surface of the sea, were covered with snow. I ordered every thing to be in readiness for our departure, and on the 29th we got under way. M. Kasloff came to take leave of us, and a calm obliging us to anchor in the middle of the bay, dined on board. I accompanied him ashore, with M. de Langle and many officers, when he gave us a good supper and another ball. The morrow, at day-break, the wind having shifted to the north, I made
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the signal for weighing. We were hardly under sail before we heard a general salute from all the artillery of St. Peter and St. Paul. This salute I returned, which was repeated when we were in the gut, the governor having sent us a detachment to do us the honours of departure, the moment we should pass before the small battery, which is to the northward of the light-house at the entrance.

We could not, without being moved, quit M. de Lesseps, whose amiable qualities had endeared him to us; and whom we left in a foreign land, on the point of undertaking a journey as long as laborious*.

We carried with us the most affectionate remembrance of this country, with a certainty that in no age, in no country, were the cares and attentions of hospitality carried to a greater pitch.

* I refer the reader, desirous of more ample details of Kamtschatka, to Lesseps' Journal annexed; he will there see and feel for the pitiable situation of that interpreter, in his route from the harbour of St. Peter and St. Paul to Paris; and the particular pains he was at in the fulfilment of his mission, and bringing one of the most interesting parts of La Pérouse's voyage to France.—*French Editor.*

CHAP.

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CHAP. XXIII.

SUMMARY PARTICULARS OF KAMTSCHATKA—DIRECTIONS FOR SAILING IN AND OUT OF THE BAY OF AWATSCHA—WE TRAVERSE IN THE PARALLEL OF $37^{\circ} 30'$, A SPACE OF 300 LEAGUES, IN SEARCH OF LAND, SAID TO BE DISCOVERED BY THE SPANIARDS IN 1620—CROSS THE LINE FOR THE THIRD TIME—WE MAKE THE ISLANDS OF NAVIGATORS, AFTER HAVING PASSED THE ISLAND OF DANGER OF BYRON—VISITED BY MANY CANOES—BARTER WITH THE INDIANS, AND ANCHOR AT THE ISLE OF MAOUNA.

RUSSIA is not indebted for its discoveries and establishments on the coasts of Eastern Tary, and the peninsula of Kamtschatka, to foreign navigators. The Russians, as greedy of the fur trade as the Spaniards are for gold and silver, have, for a long time past, undertaken the longest and most difficult journies, to procure themselves the valuable spoils of fables, foxes, and sea otters; but soldiers, more than huntsmen, it was better adapted for them to subject the natives to a tribute by enslaving, than to divide with them the fatigues of the chace. The peninsula of Kamtschatka was not discovered by them till about the end of the last century; their first expedition against the liberty of its unfortunate inhabitants taking place in 1696. The authority of Russia was not thoroughly acknowledged throughout the whole peninsula, until 1711; the Kamtschadales then accepted the conditions of a trifling tribute, which is scarcely sufficient to defray the expences of governing it; 300 fables, 200 red or grey fox, and a few otter skins, completing the Russian revenues in this part of Asia, where it has 400 soldiers

diers, mostly Cossacks or Siberians, and many officers who command in the different districts.

The court of Russia has several times changed the form of government in this peninsula; that which the English found established there, in 1778, existed no longer than 1784, at which period Kamtschatka became a province to the government of Okhotsk, which is itself dependent on the sovereign court of Irkoutsk. The ostrog of Bolcheretsk, formerly the capital of Kamtschatka, which was, at the arrival of the English, the residence of Major Behm, is now under the command of a serjeant, of the name of Martinof. M. Kaborof, lieutenant, commanded, as it was said, at St. Peter and St. Paul; Major Elemoff at Nigen Kamtschatka, or ostrog of Lower Kamtschatka; Verckneï, or Upper Kamtschatka, is under the orders of Serjeant Momayeff. These different commanders are not accountable one to the other, each communicating directly with the governor of Okhotsk, who has established an inspecting officer, with the rank of major, to the particular command of the Kamtschadales, and, without doubt, to protect them against the imaginary vexations arising from a military government.

This first glimpse of the commerce of these countries would convey but a very imperfect idea of the advantages which Russia derives from her colonies east of Asia, should the reader be ignorant that journeys by land have been succeeded by sea voyages, in the east of Kamtschatka, towards the American coasts: with those of Behring and Tschirikow, all Europe is acquainted. After the names of these men, rendered famous by their expeditions and consequent misfortunes, may be mentioned other navigators, who have added to the Russian possessions, the Aleutian islands, the groups more to the east, known by the name of Oonolaska, and all the islands south of the peninsula.

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Captain Cook's last voyage has occasioned expeditions to be undertaken yet more to the east; but I learnt at Kamtschatka, that the natives of those countries where the Russians went, have hitherto refused to pay tribute, or even carry on any commerce with them. They may probably have been weak enough to let them know they had formed the design of subjugating them, and we know how proud the Americans are of their independence, and how jealous of their liberty.

Russia is at a very little expence to extend her possessions. Some merchants give orders for equipping vessels at Okhotsk, where they are built, at immense cost; they are 45 or 50 feet long, with only one mast in the middle, nearly like our cutters, and manned by 40 or 50 rather hunters than sailors; they quit Okhotsk in the month of June, sail generally between the point of Lopatka and the first of the Kuriles, steering to the eastward; and traversing different islands for three or four years, until they have either purchased of the natives, or themselves killed, a sufficient quantity of otters to cover the charges of the equipment, and give those who fitted them out a profit of at least cent. per cent. for their advances.

Russia has yet formed no establishment eastward of Kamtschatka: each ship makes one in whatever port it winters; and, at its departure, either destroys or gives it some other ship of its nation. The government of Okhotsk takes great care to order the captains of these cutters to make the authority of Russia acknowledged by all the islanders whom they visit, and puts on board of each ship a kind of custom house officer, charged with imposing and levying a tribute for the crown. I have been told that a mission is on the point of leaving Okhotsk to preach the gospel to the subjugated people, and in some respects compensate, by spiritual good, for the tributes

imposed on them by the Russians, by the law alone of the strongest.

We know that furs sell very advantageously at Kiatcha, on the frontiers of China and Russia; but it is only since the publication of Mr. Coxe's work, that Europe has known the extent of this object of commerce; the imports and exports of which, annually amount to near eighteen millions of livres. I have been assured that 25 ships, whose complements amount to about 1000 men, as well Kamtschadales as Russians or Cossacks, were this year sent in search of furs towards the east of Kamtschatka; these ships must be scattered from Cook's River, to Behring's Island: long experience has taught them, that otters scarcely ever frequent more southerly latitudes than 60°, which, with respect to this, determines all the expeditions towards the latitude of the peninsula of Alaska, or more to the east, but never to the strait of Behring, it being incessantly obstructed by ice which never dissolves.

At the return of these ships they sometimes put into the Bay of Awatscha, but always come back to Okhotsk, where those who fitted them out, and the merchants who trade direct with the Chinese on the frontiers of the two empires, reside.

As the ice, at all seasons of the year, is passable for ships to and from the Bay of Awatscha, the Russian navigators put in there, when the time is too far advanced for their reaching Okhotsk before the end of September: a very important regulation of the Empress of Russia, forbids the navigation of the sea of Okhotsk after that period, when the hurricanes and gusts of wind, which has occasioned frequent shipwrecks in that sea, set in.

The ice never extends in the Bay of Awatscha, within three or four hundred toises from the bank; it often happens during the winter, that the land winds

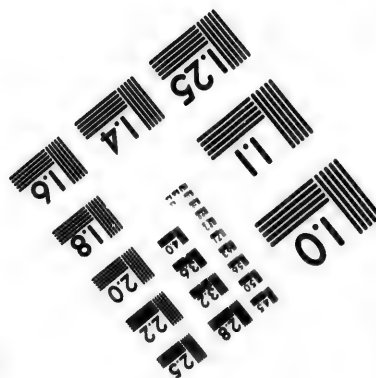
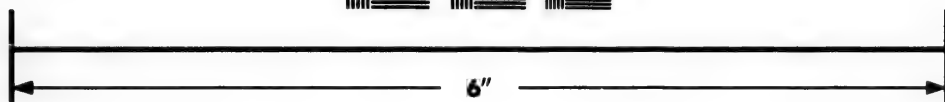
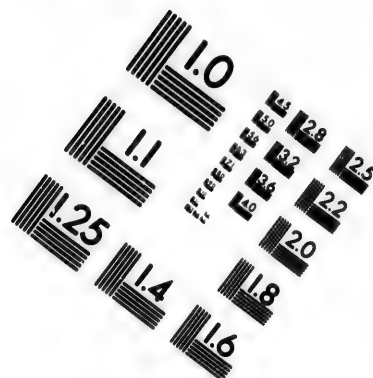
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winds disperse that which obstructs the passage into the rivers of Paratounka and Awatscha, when the navigation again becomes practicable. As the winter is, in general, not so rigorous at Kamtschatka as at Petersburg and many provinces of Russia, the Russians speak of it as the French do of Provence: but the snow which surrounded us from the 20th of September, the hoar frost with which the earth was every morning covered, and the verdure which was faded as much as it is in the neighbourhood of Paris during the month of January, all these combinations made us foresee that the rigour of the winter, in that part, must be insupportable to the southern nations of Europe.

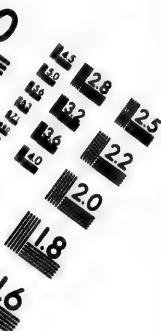
We were, however, in some respects, less chilly than the inhabitants, whether Russians or Kamtschadales, of the ostrog of St. Peter and St. Paul, who were clothed with the thickest furs; and the temperature in whose isbas, wherein are always heated stoves, was 28 or 30 degrees above the freezing point. We could not take our breath in so hot an air, and the lieutenant took care to open the windows of his apartment while we remained in it. These people are always in extremes; we know that their custom in Europe, as well as Asia, is to use vapour baths in stoves, from whence they go out covered with sweat, and then roll themselves in the snow. The ostrog of St. Peter had two of these public baths, into which I went before they were heated: they consist of a very low room, in the center of which is raised an oven of dry stone, which is made hot, like those for baking bread: its arch is surrounded by seats, placed similar to an amphitheatre, for those who choose to bathe, so that the heat varies more or less, according as they take a higher or a lower seat; when the top of the arch is made red hot by the fire which is under it, water is thrown thereon; this water immediately causes the vapours to rise, and excites the most abun-





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dant perspiration. The Kamtschadales have adopted this custom, as well as many others, from their conquerors; and in a very few years, the primitive characteristic, which distinguished them in so marked a manner from the Russians, will be entirely done away. Their population does not now exceed 4000 souls in the whole peninsula, which extends from the 51st to the 63d degree, including many degrees of longitude; thus we see that to each individual are several square leagues. They cultivate nothing which the earth produces; and their preference of dogs to rein-deer for sledges, prevents their rearing either pigs, sheep, rein-deer, colts, or calves, as these animals would be devoured before they could acquire strength sufficient to defend themselves. Fish is the principal nourishment of their sledge-dogs, which, nevertheless, travel 24 leagues a day without having any thing till they come to the end of their journey. This manner of travelling, as the reader has already seen, is not peculiar to the Kamtschadales; the inhabitants of Tchoka, and Tartars of Castries Bay, having no other kind of conveyance. We were extremely desirous of knowing whether the Russians were at all acquainted with these different countries, and learnt from M. Kasloff, that the Okhotsk ships had frequently seen the southern point of the islands, at the mouth of the river Amur, but never landed there, on account of its being beyond the boundaries of the establishments of the Russian empire on that coast.

The Bay of Awatscha bears a great resemblance to that of Brest, but its bottom being of mud, it is a much better anchorage; its mouth is narrower, and consequently easier to defend. Our lithologists and botanists met with nothing on its banks but what was extremely common in Europe. The English have given a very good plan of this bay. Attention should be paid to two shoals lying to the east and

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west of the entrance, separated by a large channel for the passage of ships: they are sure of being avoided, by leaving two detached rocks on the east shore open with the light-house point, and by keeping, on the contrary, shut in with the west shore, a large rock on the larboard hand, and which is only separated from the shore by a channel less than a cable's length wide. All the anchorage throughout the bay is equally good, and ships may lie nearer or further from the ostrog, according to the wish of communicating with the village.

From M. Dagelet's observations, Lieutenant Kaborof's house appears to stand in lat. $53^{\circ} 1' N.$ and long $156^{\circ} 30' E.$: the tides there are very regular; it is high water at half past three on the days of the new and full moon, its greatest rise in the harbour is four feet. We observed that our time-keeper, No. 19, lost $10''$ each day, which differed $2''$ from the daily loss attributed to it at Cavita, six months before.

The northerly winds, so favourable to our getting out of the Bay of Awatscha, left us two leagues in the offing, shifting to the west with an obstinacy and violence, which prevented us from pursuing the plan I proposed in reconnoitring and surveying the Kuriles, as far as the islands of Mareckan. The gales of wind and squalls succeeded each other so rapidly, that I was often obliged to lie to under the foresail, and found myself blown off eighty leagues from the coast. A knowledge of these islands being of trifling import, I did not attempt to overcome these obstacles; but steered so as to cross the parallel of $37^{\circ} 30'$, in 165° of longitude, where some geographers have placed a large, rich, well populated island, which they state to have been discovered by the Spaniards in 1620. Captain de Vries's instructions partly aimed at the discovery of this island; and a memoir, containing some particulars thereon, may be found in the fourth volume of the *Academical*

mical Collection, foreign part. It appeared to me, that among the different researches which were rather pointed out than ordered by my instructions, that deserved preference. I did not gain the parallel of $37^{\circ} 30'$ till the 14th at midnight, in the course of which day we saw five or six little land birds, of the linnet species, perch on our rigging; and the same evening perceived two flights of ducks, or corvora, birds which never go far from land. The weather was very clear, and in each frigate we had hands constantly looking out at the mast-head. A considerable reward was promised him who should first discover land: this motive of emulation was scarcely necessary, each sailor being eager for the honour of the first discovery of what, according to my promise, should carry his name. But, notwithstanding the certain indications of our being near land, we saw nothing, although the horizon was very extensive. I supposed that this island must lie to the south, and the violent gales which had recently blown from that quarter must have driven the little birds we saw on our rigging northward; and I consequently stood to the south, till midnight, when being precisely, as I before stated, in $37^{\circ} 30'$ N. lat. I ordered the ship to be kept east under easy sail, waiting with the most lively impatience for day-light. It came, and we again saw two little birds. I continued steering an easterly course; a large turtle passed the same day close along side. On the morrow, still keeping the same track eastward, we saw a bird much smaller than the wren perched on the main-top-sail-brace, and a third flight of ducks: thus were our hopes, which we never had the good fortune to realize, every moment buoyed up*. We

* Was La Pérouse ignorant that the parallel of 37° deg. 30 min. north had been fruitlessly traversed for a space of 450 miles to the east of Japan by the ship *Kastricum*? Or was he afraid of departing from his instructions, and the intimation given him in the geographical

We sustained, during this search, a real misfortune: a sailor on board the *Astrolabe*, furling the mizen-top-gallant-sail, fell into the sea; whether he was hurt in his fall, or whether he could not swim, he was no more seen, and all our endeavours to save him were ineffectual. The indications of land continued the 18th and 19th, although we had made much way to the eastward, seeing on both these days flights of ducks, or other land birds: one soldier pretended to have seen bits of sea-weed (*goémon*) pass by; but this fact being unsupported by other evidence, we unanimously rejected his account, preserving, nevertheless, the strongest hopes of the approaching discovery of land. Hardly had we attained 175° E. long. when all these signs ceased; I however continued the same course until the 22d at noon; but at this time the time-piece, No. 19, pointing out that I was in $20'$ long. beyond 180° E. of Paris, the limits fixed for my research, I altered my course southerly, to find more tranquil seas. Since our departure from Kamtschatka, our navigation had always been in the midst of the heaviest swell; at one time a sea carried away our jolly boat, lashed to the gang-way, and we shipped more than a hundred barrels of water. These difficulties would not have been worth remarking had we been more fortunate in meeting with the island, the search for which cost us so much fatigue, and which is certainly in the vicinity of the course we followed: the signs of land were too frequent and remarkable to

geographical note in the first volume? Whatever might be the motive which determined him, the frequent indications navigators have had of land, makes it much to be regretted that La Pérouse did not resolve to pursue the 37th or 38th parallel. The lands discovered by the ancients being almost wholly retrieved in our time, this island will certainly become an object for fresh researches; and there is room for hoping that it will be found by running along the parallel of 36° deg. 30 min.—*French Editor.*

leave a doubt of this on our minds. I was led to believe that we pursued a too northerly track; and had I the same search to make over again, I would keep in the parallel of 35° from 160° to 170° long. It is in this space that we saw most land birds, which appeared to have come from the south, and been driven by the violence of the winds, which blew from that quarter. The further object of my voyage did not leave me time to learn the truth of this conjecture, by running as far to the west as we had just done to the east: the winds, which almost incessantly blew from the west, would not have permitted me to make in two months the run I had made in eight days.

I shaped my course towards the southern hemisphere, as the vast field for discoveries, where the track of Quiros, Mendana, Tasman, &c. are, in every sense, crossed by those of modern navigators, each of whom has added some new islands to those already known, but of which the curiosity of Europeans desired more circumstantial details than are to be found in the narratives of former navigators. We know that in this vast portion of the great equatorial ocean, there exists a zone from about 12° to 15° N. and S. and 140° E. and W. strewed with islands, which are on the terrestrial what the milky way is on the celestial globe. The language and the manners of the inhabitants are no longer unknown to us; and the observations of later circumnavigators can give no ground for conjectures on the probable origin of these people, which may be attributed to the Malays, as those of the different colonies on the coasts of Spain and Africa are to the Phenicians.

In this archipelago my instructions ordered me to navigate during the third year of our expedition, the western and southern part of New Caledonia, of which the eastern coast was discovered by Captain Cook, in his second voyage; the southern

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isles of the archipelago of Arfacides, the northern of which Surville found out; the southern part of the land of Louisiade, which Bougainville could not explore, but on the south-east of which he had first ranged along. The attention of Government was particularly fixed on these geographical points, and I was enjoined to lay down their limits, and accurately determine their latitude and longitude. The Friendly and Society Islands, the New Hebrides, &c. were known, and could no longer interest European curiosity; but offering the resources of provisions, I had the choice of putting in there or not, as I might find it necessary, reasonably presuming, that on quitting Kamtschatka, I should have very little fresh provisions; so necessary for the preservation of the health of the sailors.

It was not possible for me to advance fast enough to the south, to avoid a gale of wind which blew from that quarter on the 23d of October: the sea was extremely high, and we were obliged to lie to all night, under the foresail: the winds were very changeable, and the sea rough as far as the 30th degree of latitude, which parallel we reached on the 29th October. Our health was in general affected, by so rapid a transition from cold to the greatest heat; but the inconveniences we felt from it were so trifling, that none of us was under the necessity of keeping his bed.

The 1st November, in 26° 27' N. lat. and W. long. 175° 38', we saw a great number of birds, among which were curlews and plovers, two species that never fly far from land. The weather was cloudy, with squalls; but it cleared up successively in every part of the horizon except the south, where large clouds remained constantly fixed, which made me believe there was land in that quarter. This course we followed: the 2d, 3d and 4th, we continued to see birds; by degrees the signs of land disappeared, but it is more than probable we passed by some island

island or shoal, which we did not get sight of, and which chance will probably present to the view of another navigator. We then began to enjoy a serene sky, and it was at last possible for us to find the longitude, by lunar observations, we had not before been enabled to take since we had left Kamtschatka: the longitude, by observation, differed from that given by our time-piece, No. 19, being one degree more to the west. We caught some doradoes, and two sharks, which were delicious food to us, who were all reduced to salt pork, and began to feel the influence of these burning climates. We repeated our lunar observations the following days, and always found the same difference. We had at last arrived at the tropic; the weather became finer, and our horizon was of greater extent: we still perceived no land, but some land birds every day, which are never met with far from it. The 4th November we were in $23^{\circ} 40' N.$ lat. and $175^{\circ} 58' 47'' W.$ long., according to the mean of several sets of observations taken the same day. We caught a golden plover, which was yet tolerably fat, and could not have been wandering at sea for any length of time. On the 5th we crossed the line of our tract from Monterey to Macao; on the 6th, that of Captain Clerke from the Sandwich Islands to Kamtschatka; the birds had entirely disappeared. Our vessels were extremely laboursome on account of a heavy swell from the east, which like that from the west in the Atlantic Ocean, constantly prevails in this vast sea; we met with neither bonetas nor doradoes, and hardly saw any flying fish; our fresh provisions were absolutely consumed, and we had reckoned too much upon fish to soften the austerity of our allowance. The 9th we passed the southern point of the shoal of the Villa Lobos, according to its situation on the charts which M. de Fleurieu had transmitted to me. I so regulated my rate of sailing as to come into its latitude in the day time, but as we perceived neither

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birds nor sea-weeds, I am inclined to believe, that if such a shoal is in existence, a more western position must be assigned to it, the Spaniards having always placed their discoveries in the great ocean, too near the coasts of America. The sea fell a little at this time, and the breezes were more moderate; but the sky was covered with thick clouds, and we had hardly attained the 10th degree of north latitude, when we experienced an almost continued rain, at least during the day, for the nights were tolerably fine. The heat was suffocating, and the hygrometer never denoted more humidity since we left Europe; we breathed a confined air, which, joined to our bad food, diminished our strength, and would have rendered us almost incapable of hard labour, if circumstances had required it. I redoubled my cares to preserve the health of my crew at this crisis, brought on by a too sudden transition from cold to heat and moisture. I daily distributed coffee for breakfast, and ordered the between-decks to be kept well aired and dried; the rain water served for washing the sailors' shirts, and we thus profited by the intemperature of the climate we were obliged to pass through, and the influence of which I was more afraid of than that of the highest latitudes we had traversed. The 6th of November, we for the first time took eight bonetas, which afforded the whole ship's company a good meal, as well as the officers, who like myself had now no other than the ship provisions. These rains, storms, and heavy swells, ceased about the 15th, when we were in 5 degrees N. latitude; we then enjoyed the most serene weather: our horizon being of the widest extent, at sun-set, made our night's run perfectly safe; besides the air was so clear, and the sky so serene, that a brightness shone from it, by the aid of which we might have perceived any dangers, the same as in broad day light. This fine weather accompanied us from our crossing the equator,

tor, the 21st November, for the third time since leaving Brest: we were three times at the distance of about 60° from it north or south; and the further plan of our voyage was not to bring us towards the northern hemisphere till we were in the Atlantic Ocean, on our return to Europe. The monotony of this long passage was not at all interrupted; our track was nearly parallel with that of the preceding year, in going from Easter Island to the Sandwich Islands, in which course we were incessantly surrounded with birds and bonetas, which furnished us with abundance of healthy nourishment; while here, on the contrary, a vast solitude reigned around, the air and the water of this part of the globe being equally without inhabitants. We however caught, on the 23d, two sharks, which afforded the ship's company two meals, and we on the same day killed a curlew very lean, and which appeared greatly fatigued; we thought it might have come from the Duke of York's Islands, about 100 leagues off; it was bathed and eat at my table, and was hardly better than the sharks. In proportion as we neared the southern hemisphere, noddies, man-of-war birds, sea swallows, and tropic birds, hovered round the ships; we took them as the fore-runners of some island, which we were very impatient to fall in with, being discontented at the fatality which attended us since our departure from Kamtschatka, in making a long run without the least discovery. The quantity of these birds became innumerable when we were in 4° S. lat., which made us every instant expect some land; but though the horizon was of a most surprising extent, we saw none, indeed we made very little way. The breezes fell when in 2° S. lat. and were succeeded by light airs from the N. to W. N. W., with which I made a little easting, lest I should be carried to leeward of the Friendly Islands. While these calms lasted we caught some sharks, which we preferred to salt meat, and some sea fowl, which

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we eat in a hash, and although very lean, they tasted and smelt intolerably of fish, yet in the present dearth of fresh provisions, we thought them almost equal to woodcocks. The black, or white gulls are peculiar to the South Seas, and I never saw any in the Atlantic: we killed many of them, as well as noddies and man-of-war birds; the latter hovered in such numbers over the ships in the night time, that we were almost stunned with their noise, and could hardly hold a conversation on the quarter deck: our sport, which we were pretty fortunate in, revenged their chattering, and furnished us with palatable food; but they disappeared when we passed the sixth degree. The winds from N. W. to W. which commenced about 3° S. lat. but were very faint, with clear weather, then constantly prevailed till we were in lat. 12° . A heavy swell from the west, rendered our navigation very laborious: our running rigging, rotted by the constant humidity on the coast of Tartary, was breaking every instant; we did not replace it till the last extremity, for fear of having none left. Squalls, tempests, and rain, continually accompanied us till in $10^{\circ} 59'$ which we reached on the 2d December. The wind which remained steady at W., becoming more moderate, and the sky more bright, we took lunar observations, in order to rectify the error of our time-keepers, which seemed to have lost five minutes of time, by which they gave the longitude $1^{\circ} 15'$ too much east, since our departure from Kamtschatka. We passed, according to the longitude obtained by the distance of the moon from the sun, the result of which was $170^{\circ} 7' W.$, precisely on the spot assigned by Byron to his *Isles of Danger*; for we were in their latitude, and perceiving no land, nor any trace of being near any, it is clear that a different longitude must be given them. Commodore Byron, in his navigation, had gone by the erroneous method of a dead reckoning. The next day, the 3d December, we were in $11^{\circ} 34' 37'' S.$ lat. and $170^{\circ} 7' 1'' W.$

W. long. by our lunar observations, exactly in the same parallel as the island of the Handsome Nation of Quiros, and one degree farther to the east. I should have preferred standing some degrees to the west, for the sake of meeting with it, but the winds blew directly from that quarter: and the situation of the island was too uncertain to seek it by plying to windward. I therefore thought to make the best of these winds to gain the point of Bougainville's Navigators' Islands, which are a French discovery, and where we might succeed in finding some refreshments, of which we were much in want.

The most easterly island of that archipelago came in sight the 6th of December, at three o'clock in the afternoon we made sail till eleven to approach it, when we stood off and on for the rest of the night. As I proposed coming to there, if there was anchoring ground, I entered the channel between the great and small island, which Bougainville left to the south. It is narrow, being hardly a league in width, but it appeared safe and free from shoals. We were in the channel at noon, when we observed, at a mile from the coast, in lat. $14^{\circ} 7' S.$; the south point of one of these islands bearing $S. 36^{\circ} W.$: so that the southern point of this island is situated in $14^{\circ} 8' S.$ lat.

We saw no canoes till we arrived in the channel. We had perceived habitations when to windward of the island, and a considerable group of Indians, seated in a circle under cocoa-nut trees, seemed to enjoy, without emotion, the spectacle which the sight of our frigates afforded; they neither launched a canoe, nor followed us along the shore. This land, about two hundred toises in height, is very steep, and covered to its summit with lofty trees, among which we distinguished many cocoa-palms. The houses are built about half way down, by which means these islanders breathe a more temperate air. We remarked near us some ground newly turned up, where

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where probably potatoes or yams had been planted : but the island, taking it altogether, appeared to be not very fertile, and in any other part of the South Sea, I should have believed it to be uninhabited. My error in this respect would have been the more gross, as even two little islands, forming the western coast of the channel through which we passed, have likewise their inhabitants. We saw five canoes detached, that formed a junction with eleven others from the eastern island, which, after having gone several times round our two ships, with an appearance of mistrust, at last ventured to approach, and barter with us, but to so trifling an extent, that we only obtained twenty cocoa-nuts, and two blue gallinules. These islanders were, like all those of the South Sea, treacherous in their commerce ; and after receiving the price of their nuts before hand, rarely returned with the articles agreed for in exchange. These thefts indeed were of little importance, a few glass beads, necklaces, with little slips of red cloth, being scarcely worth the trouble of reclaiming. We frequently founded in the channel with a line of one hundred fathoms, which did not reach the bottom, though within a mile of the shore. We continued our course to double a point, behind which we hoped to find shelter ; but the island was not near the width represented by M. de Bougainville's chart, terminating, on the contrary, in a point, and its greatest diameter not exceeding a league. We found the east wind blowing right on this coast, which is guarded by reefs, and we satisfied ourselves that it would be vain to seek further for anchorage. We then directed our course out of the channel, intending to run along the two western islands, which are together nearly as considerable as the most eastern one : they are separated by a channel less than one hundred toises wide ; and at this western extremity is seen an islet, which, but for its being covered with trees, I should

should have called a large rock. Before doubling the two southern points of the channel, we were completely becalmed, and buffeted about by a heavy swell, which made me fearful of running on board the *Astrolabe*: happily some light airs of wind soon extricated us from this disagreeable situation, which prevented us from attending to the harangue of an old Indian, who held a branch of *kava* in his hand, and delivered a discourse of tolerable length. This we knew, from the perusal of different voyages, was a sign of peace, and throwing him some stuffs, we answered him by the word *tayo*, which, in the language of many of the South Sea Islands, means *friend*; but we were not hitherto sufficiently in practice to understand and pronounce distinctly the different words extracted from the vocabulary of Cook's voyages.

When we had at length caught the breeze, we made sail and stood away from the coast, to get out of reach of the calms. All the canoes then came alongside: they, in general, sailed tolerably well, but went very indifferently with paddles. These boats would have been useless to people less expert in swimming, as they overset every instant. But this accident surprises and disturbs them less than letting a hat fall does us. They raise the canoe upon their shoulders, and, after having emptied it of the water, they again get into it, very sure of having to recommence the same operation within half an hour afterwards, the equilibrium being almost as difficult to preserve in these ticklish barks, as that of our tumblers is on their ropes. These Islanders are generally tall, their medium stature being about five feet seven or eight inches: the colour of their skin is nearly like that of the Algerines, or other people on the coast of Barbary: their hair is long, and turned up to the top of the head: their physiognomy appeared by no means agreeable. I saw only two women, whose features were not more delicate. The youngest, whom I might
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gues to be about 18, had on one leg, a hideous and disgusting ulcer. Many of these islanders had large sores, which, it is possible, might be a commencement of leprosy, for I remarked two men amongst them, whose ulcerated legs, as thick round as their body, left no doubt as to the nature of their malady. They approached us with fear, unarmed, and every thing bespeaks them as peaceable as those of the Society, or Friendly Islands. We thought they were gone to return no more; our regret for which, from their apparent poverty, was but little: but the breeze having much abated in the afternoon, came the same canoes, accompanied by many others, two leagues into the offing, to propose fresh exchanges: they had gone on shore after quitting us, and returned rather more richly laden than the first time. At this renewal of traffic, we obtained from the Islanders many curiosities, relative to their dress, five fowls, ten gallinules, a small pig, and the most beautiful turtle-dove we had ever seen. It was white, its head of the finest violet, green wings, and breast speckled with small red and white spots, like the leaves of the anemone. This little creature was quite tame, eating out of the hand or mouth; but it was not probable that it could be brought alive to Europe: in fact, its death only permitted us to preserve its plumage, which soon lost all its brightness. As the Astrolabe had always been a-head of us in this route, the canoes had all commenced their traffick with M. de Langle, who had purchased of the Indians two dogs, which we found very good.

Although the canoes of these Islanders are all of curious construction, and prove their skill in working in wood, we could never prevail upon them to accept of our hatchets, or any iron instrument; they preferred glass beads, which could be of no use to them, to all the iron and stuffs we could offer. They sold us a wooden vessel full of cocoa-nut oil: it was similar in shape to one of our pipkins, and an Euro-

pean workman would never believe that it could have been made otherwise than by a turning lathe. Their ropes are round, and twisted like our watch-chains; their mats are very fine, but their stuffs inferior in colour and weight to those of the Easter and Sandwich Islands. It appeared, besides, that they were uncommon, for all the Islanders were completely naked, and they sold us only two pieces. As we were sure of meeting with an island of greater magnitude more to the west, where we flattered ourselves we should at least find some shelter, though there even should be no harbour, we prepared to make more extensive observations after our arrival in that island, which, according to M. de Bougainville's plan, could only be divided from the last islet, which we were abreast of at night-fall, by a channel eight leagues wide. I stood only three or four leagues to the westward after sun-set, and passed the rest of the night standing off and on, under easy sail. I was much surprised when day broke to see no land to leeward, nor did I get sight of it till six o'clock in the morning, from the channel being infinitely wider than the one laid down in the chart whereby I steered. It were much to be wished, that the charts of a voyage, which, for accuracy of observation, and extent and importance of discoveries, is only second to those of Captain Cook: it is much to be wished, I say, that the particular draughts had been made with more care, and on a larger scale.

We did not gain the north easterly point of Maouna Island until five o'clock in the evening. It being my attention to look for an anchorage there, I made a signal to the Astrolabe to haul to the wind, that we might stand to and fro to windward of the island, during the night, and have all the following day to explore it in the most trifling particulars. Although three leagues from the shore, three or four

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canoes came on board the same evening, to bring us pigs and fruit in exchange for glass beads, which gave us the highest opinion of the richness of that island.

On the morning of the 9th, I approached the land, and ran along the coast, at half a league distant. It is surrounded by a reef of coral, on which the sea broke with great force; but this reef almost joined the shore, and the coast formed several little coves, in front of which were inlets where canoes could pass, and probably our barges and long-boats. At the bottom of each of these creeks we saw numerous villages, whence came out canoes without end, laden with pigs, cocoa-nuts, and other fruits, in exchange for which we gave glass trinkets. So great an abundance increased my desire of coming to an anchor there; besides, we saw water rolling in cascades from the tops of the mountains to the foot of the villages. So many advantages did not make me very difficult in the choice of an anchoring place. I got as near the coast as possible; and at four o'clock having found, at a mile from the shore, and in thirty fathoms water, a bed of broken shells and very little coral, we let go the anchor, but were tossed about by a very heavy swell, which set towards the land, notwithstanding the wind blew off shore. We immediately hoisted out our boats, and the same day M. de Langle and several officers, with three armed boats from the two frigates, went on shore at the village, where they were received in the most amicable manner. Night coming on when they landed on the beach, the Indians lighted a great fire to make the landing place clear: they brought birds, pigs, and fruit. After staying an hour our boats returned. Every one seemed satisfied with this reception, and the only thing we regretted was being anchored in so bad a roadstead, where the frigates rolled as if in the open sea. Although sheltered from the easterly wind, the calm was sufficient to expose us to the

greatest danger if our cables should part; and the impossibility of getting under way, left us no resource against a rather strong N. W. breeze. We knew by the accounts of those navigators who had preceded us, that the trade winds were by no means constant in these latitudes; that it is almost as easy to get to the eastward, as to the west, which facilitates the long runs these nations make to the leeward, ourselves having experienced this inconstancy of the winds, the westerly breezes having only left us in 12° . These reflections made me pass the night the more restlessly, as a storm was rising towards the north, from whence the winds blow with great violence—happily the land breeze prevailed.

CHAP. XXIV.

MANNERS, DRESS, ARTS, AND CUSTOMS OF THE ISLANDERS OF MAOUNA—CONTRAST OF THIS SMILING AND FERTILE COUNTRY WITH THE FEROCITY OF ITS INHABITANTS—THE SWELL BECOMING VERY HEAVY, COMPELS US TO GET UNDER WAY—M. DE LANGLE WANTING TO PROCURE WATER, LANDS WITH FOUR ARMED BOATS—HE IS ASSASSINATED—ELEVEN PERSONS OF THE TWO SHIP'S COMPANIES EXPERIENCE THE SAME FATE—CIRCUMSTANTIAL NARRATIVE OF THIS EVENT.

ON the morrow, the rising of the sun announced a fine day, of which I resolved to take advantage to reconnoitre the country, observe the inhabitants in their own huts, fill water, and afterwards get under way, prudence not permitting me to pass a second night at this anchorage, which M. de Langle had likewise found too dangerous for a longer

longer stay, wherefore it was agreed that we should weigh in the afternoon, and that the morning, which was very fine, should be partly employed in treating for fruit and pigs. Ever since day-break had the islanders brought round the two frigates a hundred canoes full of different provisions, for which they would receive nothing but beads in exchange: they were to them the most valuable diamonds. Our hatchets, stuffs, and other articles of commerce, they regarded with contempt. While one part of the crew was taken up with keeping the Indians together, and carrying on commerce with them, the remainder filled the long-boats and barges with empty casks, to go and procure water. Our two armed boats, commanded by Messrs. de Clonard and Collinet; those of the *Astrolabe* by Messrs. Monti and Bellegarde, set off with this view, at five o'clock in the morning, for a bay at the distance of about a league, and rather to windward; a situation the more commodious, as our boats could sail back with a free wind. I followed very close Messrs. de Clonard and Monti in my biscay yawl, and got ashore at the same time as them. Unfortunately M. de Lahgle would go in his jolly-boat to a second creek, about a league from our watering place; and this tour, from whence he returned enchanted with the beauty of the village which he had visited, was, as will be seen, the cause of our misfortunes. The creek, towards which our long-boats steered, was large and convenient; the long-boats and barges there remained afloat at low water, within half a pistol-shot from the beach; the water was fine, and easy of access. Messrs. de Clonard and Monti kept the best order there. A line of soldiers was posted between the beach and the Indians, who were in number about two hundred, among whom were many women and children. We got them all to sit down under some cocoa-palms, at only about eight

toises from our long-boats. Each had by him some fowls, pigs, parroquets, pigeons, and fruit, which all wanting to dispose of at the same time, created some confusion. The women, some of whom were very pretty, offered, with their fruit and fowls, their favours to all such as had beads to give in return. They soon attempted to break through the line of foldiers, who gave them too weak a repulse to stop them. Their manners were soft, lively, and engaging. Europeans who have been round the world, particularly Frenchmen, have no arms against such kind of attacks: they succeeded, without much trouble, in breaking through the ranks. The men next came near, and the confusion increased; but some Indians, whom we took for Chiefs, made their appearance, armed with clubs, and order was re-established; every one returned to his post, and the traffic recommenced, to the great satisfaction of both buyers and sellers. A circumstance had, however, occurred in our long-boat, which was a real act of hostility, and which I would fain repress without bloodshed. An Indian had got upon the stern of our boat, when, catching hold of a mallet, he gave one of our sailors several hard blows on the arms and back. I ordered four of the strongest marines to lay hold of him, and fling him into the sea, which they immediately did. The other islanders appeared to disapprove of their countryman's conduct, and this scuffle passed off without any other consequences. Perhaps an example of severity was necessary to make a stronger impression on these people, and let them know what power our arms had over their individual strength: for their height, about five feet ten inches, their limbs strongly formed, and in the most colossal proportions, gave them an idea of their own superiority, which did not render us very formidable in their eyes; but having very little time to stay among these islanders, I did not think

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think myself justified in inflicting a more severe punishment on him who had committed the offence: at the same time, to give them some idea of our power, I ordered three pigeons to be bought, which were thrown up into the air, and killed by musket-shot, in presence of the whole assembly. This act seemed to have inspired them with some fear, and, I must own, I expected more from this sentiment than from that of kindness, of which man, hardly out of the savage state, is rarely susceptible.

While every thing was going on with the greatest tranquillity, and our casks were filling with water, I thought I might walk about two hundred paces, for the sake of visiting a charming village, situated in the midst of a wood or rather orchard, the trees in which were weighed down by fruit. The houses were placed in the circumference of a circle, about 150 fathoms in diameter, the centre of which formed a vast open place, with a grass-plat of the most beautiful verdure; the trees which overshaded it, kept up a delicious freshness. Women, children, and old men accompanied me, and invited me into their houses, there they spread the finest and freshest mats on the ground, formed by small picked pebbles, and which they had raised about two feet to protect them from the damp. I entered the handsomest of these huts, which probably belonged to the Chief, when how great was my surprise, to see a large room of lattice work, equally well executed with any of those about Paris. The best architect could not have given a more elegant curve to the extremities of the ellipsis than terminated this cabin; a range of columns at five feet distance from each other was placed all round it: these columns were made of trunks of trees wrought with great nicety, between which, fine mats, artfully laid one on the other like the scales of a fish, were elevated or let down by cords like our lattices, the

rest of the house was covered with leaves of the cocoa palm.

This charming country united the twofold advantage of a soil fertile without culture, and a climate which required no cloathing. Bread fruit, cocoa-nut, banana, gouvass, and orange trees furnished this fortunate people with abundance of wholesome nourishment; while fowls, pigs and dogs, which live on the refuse of these fruits, afforded them an agreeable variety of meats. They were so rich, and in want of so little, that they disdained our instruments of iron and stuffs, and would only have beads: burthened with real goods, they only wished for tiseless things.

They had sold at our market more than two hundred tame wood pigeons, which would only eat out of the hand; they had also given us in exchange the most charming turtle doves and parroquets, equally tame with the pigeons. What imagination could not figure to itself the happiness of so delicious an abode! These Islanders, were we incessantly repeating, are undoubtedly the most happy inhabitants of the earth; surrounded by their wives and their children, they enjoy, in the midst of repose, days of purity and tranquillity; their only care is to bring up birds, and, like the first Adam, to gather without labour, the fruits which grow over their heads. We deceived ourselves: this beautiful abode was not the mansion of innocence: we perceived, it is true, no arms, but the bodies of these Indians covered with scars, proved that they must be at war, or quarrel among themselves, and their countenances bespoke a ferocity imperceptible in the physiognomy of the women. Nature had without doubt, left this stamp on the figure of the Indians to denote that man, almost wild, and in a state of anarchy, is a being more mischievous than the fiercest of the animal creation.

This first visit passed off without any dispute capable of bringing on dreadful consequences; I, however,

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ever, was informed there had been private quarrels, but that great prudence had done them away: M. Rollin our surgeon-major had been pelted with stones; an Islander, under pretence of admiring M. Monneron's sword, attempted to wrench it from him, and the scabbard only having come off, he ran away frightened to death at the sight of the naked blade. I observed that these islanders were in general very turbulent, and paid very little attention to their chiefs; but as I meant to set off in the afternoon, I felicitated myself in not having given importance to the petty vexations we had experienced. Towards noon I returned on board in my Biscay yawl, and the boats followed me very close; it was difficult to get alongside because of the canoes which surrounded the two frigates, and our market not being exhausted, I had given the command of the frigates in charge to M. Boutin when I went on shore, and left it to him to act as he should think proper, in permitting the Islanders to come on board, or absolutely forbidding it, according to circumstances. I found on the quarter deck seven or eight Indians, the oldest of whom was introduced to me as a chief. M. Boutin told me, that he could not prevent them from getting on board without giving orders to fire; that when they compared their bodily strength with ours, they derided our threats, and made a joke of the centinels; that on his side, knowing my principles of moderation, he was not willing to employ violent means, which notwithstanding, were the only means that could restrain them: he added, that since the presence of the chief, the Islanders on board had become more orderly and less insolent. I made the chief many presents, and gave him proofs of the utmost kindness: wishing afterwards to inspire him with a high opinion of our strength, I ordered different proofs of the use of our arms to be made before him: but their effect made little or no impression

pression on him, and he seemed to think they were only fit for killing birds. Our boats arrived laden with water, and I disposed every thing for weighing, and taking advantage of a gentle land breeze, which made us hope to have time for getting a little further off the coast; M. de Langle returned at the same time from his excursion; he told me that he landed in a fine cove for boats, situated at the foot of a delightful village, and near a cascade of the most limpid water.

In going on board he had given orders for getting under way, perceiving, like me, the necessity for it: but he insisted, in the most positive manner, upon our stretching off and on a league from the coast, and procuring a few long-boat loads of water, before finally bidding adieu to the island. In vain I represented to him that we were not in the least want of it: he had adopted Capt. Cook's system, and thought that water recently taken on board was a hundred times preferable to that which we had in the hold; and as some of his ship's company shewed slight symptoms of scurvy, he thought, with reason, that it was our duty to give them every possible comfort. Besides, no island could stand in competition with this for abundance of provisions; the two frigates having already trafficked for 500 pigs, a great quantity of fowls, pigeons, and fruit, and all at the expence only of a few beads of glass.

I at once saw the truth of these reflections, but a secret foreboding at first prevented my acquiescence. I told him that I found these islanders too turbulent to risk sending our boats on shore, where they could not be supported by the fire of the ships; that our moderation had only served to increase the confidence of the Indians, who only calculated on our personal strength, far inferior to their own. But nothing could shake M. de Langle's resolution, who told me that my opposition made me responsible for the progress of the scurvy, which began to make its

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appearance with sufficient violence, and that, besides, the harbour of which he spoke was much more commodious than our former watering place. At last he begged me to give him leave to head the first expedition, assuring me that in three hours he would return on board, with all the boats filled with water. M. de Langle was a man of such judgment and capacity, that these considerations, more than any other motive, determined my assent, or rather made me give up my own will to his; I therefore promised him that we would stand off and on all night; that on the morrow, our two long-boats and our two barges should be expedited, armed as he might judge proper, and that the whole should be under his orders. The event completed our conviction that it was time to get under way; for, on taking up the anchor, we found one strand of the cable cut by the coral, and in the course of two hours the whole cable would have been cut. As we did not set sail till four o'clock in the afternoon, it was too late to think of sending the boats ashore, and their departure was accordingly deferred till the following day. The night being stormy, and the winds changing every instant, resolved me to get about three leagues distant from the coast. In the morning the dead calm would not let me approach, and it was not before nine o'clock that there arose a light breeze from the north-east, that enabled me to come near the island, from which, at eleven, we were only one short league. I then dispatched my long boat and my barge, commanded by Messrs. Boutin and Mouton, on board the *Astrolabe*, with orders to put themselves under the command of M. de Langle; all those who were slightly infected with scurvy, were put on board, as well as six armed soldiers, with the master at arms at their head; the two boats contained 28 men, and carried about 20 empty casks to be filled with water. Messrs. de Lamanon and Colinet, although far from well, were among the number of those

those who left the Bouffole. On the other hand, M. de Vaujuas, a convalescent, accompanied M. de Langle in his barge; M. le Gobien, a midshipman, commanded the long-boat; and Messrs. de la Martinière, Lavaux, and Father Receveur, made part of the 33 persons sent from the Astrolabe.— Among the 61 individuals composing the whole expedition, were the choicest men of our crews. M. de Langle armed the whole with muskets and cutlasses, and six swivels were mounted in the long-boats; I left it to him to do whatever he might think necessary for his safety. The certainty of having had no dispute with these people, for which they could harbour revenge, the immense quantity of canoes which surrounded us in the offing, the air of gaiety and confidence which prevailed in our traffick, all tended to increase his security; and I confess that it was not greater than mine: but it was contrary to my principles to send boats ashore, without extreme necessity, and particularly in the midst of a numerous people, which could neither be supported nor even seen by our ships. The boats put off from the Astrolabe at half past twelve at noon, and in less than three quarters of an hour arrived at the watering place. How great was the surprise of all the officers, and of M. de Langle himself, to find, instead of a large and commodious bay, a creek almost choked up with coral, which could only be entered by a winding channel, less than 25 feet in width, where the surf broke as upon a bar! When they were within, they did not find three feet water; the long-boats got a-ground, and the barges were only kept a-float by being hauled up to the mouth of the channel, far enough from the beach. Unfortunately, M. de Langle had explored this bay at high water, and did not suppose that in these islands the tide rose five or six feet; he thought that his eyes deceived him. His first movement was to quit this bay, for that where

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we had already taken in water, and which comprehended the same advantages: but the air of tranquillity, and mildness of the people who were in waiting on the beach, with an immense quantity of fruit and pigs; the women and children he remarked among the islanders, who always take care to send them out of the way when they have any hostile views; all these circumstances together, made his first ideas of prudence vanish, which an inconceivable fatality prevented him from following. He put the water casks on shore from the four boats, with the greatest tranquillity; his soldiers established the best order on the beach, where they formed a line, which left plenty of room for our people. But this calm was not of long duration, many of the canoes which had disposed of their provisions to our ships, were returned on shore, all of which resorted to the bay where they were taking in water, so that by degrees it was full: instead of 200 inhabitants, including women and children, which M. de Langle found assembled on his arrival at half past one, at three o'clock there were 10 or 1200. The number of canoes which had traded with us in the morning, was so considerable, that we had scarcely perceived their diminution in the afternoon; I gave myself credit for keeping them engaged on board, hoping that our boats would thereby meet with less interruption: my error was great; the situation of M. de Langle became more embarrassing every moment; seconded by Messrs. de Vaujuas, Boutin, Colinet, and Goubien, he however succeeded in shipping his water; but the bay was almost dry, and he could not expect to get his long-boats afloat before four o'clock in the afternoon; he nevertheless went on board, as well as his detachment, and took his station in the bow, with his musket and fusileers, forbidding them to fire without orders. He, nevertheless, began to perceive that he should soon be forced to do it: the
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stones already flew about, and these Indians, the water only reaching up to their knees, surrounded the boats, at less than a toise distant; the efforts of the soldiers who were embarked, to disperse them, were in vain. If the fear of commencing hostilities, and being accused of barbarity, had not checked M. de Langle, he would have assuredly ordered a discharge, both from the musquetry and swivels, to be made on the Indians, which would certainly have kept the multitude at a distance; but he flattered himself that he should be able to restrain them without shedding blood, and fell a victim to his own humanity. A shower of stones, thrown from a very short distance, with all the strength of a sling, soon reached almost all those who were in the long-boat. M. de Langle had only time to fire his musket twice, when he was knocked down, and unfortunately fell over the larboard side, when more than 200 Indians immediately massacred him with clubs and stones. When he was dead, they tied him by one of his arms, to a row-lock of the boat, for the purpose of profiting, no doubt, of his spoils. The long-boat of the *Boussôle*, commanded by M. Boutin, was a-ground, two toises from that of the *Astrolabe*, leaving, in a parallel line between them, a little channel, unoccupied by the Indians, whereby all the wounded who were fortunate enough not to fall on the off side, saved themselves by swimming; they reached our barges, which very fortunately remaining a-float, were the means of saving 49 men out of the 61 composing the expedition. M. Boutin had imitated all the movements, and followed all the steps of M. de Langle; his water casks, his detachment, and all his people, had been embarked at the same time, and he posted himself in the same manner in the bow of the long-boat. Although apprehensive of the dreadful consequences of M. de Langle's moderation, he did not suffer himself, nor order his detachment to fire, until
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after his commander. It may be supposed, that at the distance of four or five paces, every shot must have brought down an Indian, but they had not time to load again. M. Boutin was, in like manner, knocked down by a stone; he fortunately fell between the two long-boats, on board of which, in less than five minutes, not a single man remained. Those who had saved themselves by swimming to the two barges, had each several wounds, mostly on the head; those on the other hand, who had the misfortune to fall over on the side of the Indians, were put an end to in an instant, by their clubs.

But such was their rage for pillage, that those Islanders ran to take possession of the long-boats, and got on board to the number of three or four hundred; they broke up the seats, and pulled the inside to pieces in search of our supposed riches. They then took no further notice of our barges, which gave Messrs. Vaujuas and Mouton time to save the remainder of the people, and to be sure that none remained in the power of the Indians, besides those who had been massacred and killed in the water, by blows of their *patows*. Those who were on board our barges, and who had till then been firing upon and killed many of the Islanders, no longer thought of any thing but throwing their water-casks into the sea, that the boats might hold them all; besides they had exhausted most of their ammunition, and the retreat could not be effected without difficulty, with so great a number of persons dangerously wounded, who, extended on the thwarts, prevented the oars from having full play. To the wisdom of M. de Vaujuas, the good order he established, and the punctuality observed by M. Mouton, who commanded the Bouffole's boat, 49 persons of the two ships' companies owe their preservation. M. Boutin who had five wounds in the head, and one in the stomach, was kept above water by the coxswain of the long-boat, who

who was himself wounded. M. Colinet was found lying almost lifeless on the grapnel rope of the barge, with one arm fractured, a finger broke, and two wounds in the head. M. Lavaux, surgeon-major of the *Astrolabe*, was so badly wounded, that it was necessary to trepan him; he had nevertheless swam to the boats as well as M. de la Martinière and Father Receveur, who had received a violent contusion in the eye. M. de Lamanon and de Langle were massacred with unexampled barbarity, as well as Talin, master at arms of the *Boussole*, and nine others of the two ships' companies. The ferocious Indian after having killed them, yet sought to wreak his fury on their lifeless carcases with clubs. M. le Gobien, who commanded the *Astrolabe's* long-boat under the orders of M. de Langle, did not quit it before he found himself left alone; after having used all his ammunition, he leapt into the water on the side of the channel formed by the two boats, which, as I before said, was not possessed by the Indians; and, notwithstanding his wounds, succeeded in saving himself in one of the barges; that of the *Astrolabe* was so deeply laden that it grounded, which gave the Islanders an idea of harassing the wounded in their retreat; they came down in great numbers towards the reefs at the entrance of the cove, which the barges were under the necessity of passing at the distance of about ten feet. The little ammunition that remained was exhausted on the furious crowd, and the boats at length got out of this den, more dreadful by its perilous situation, and the cruelty of its inhabitants, than the haunt of lions and tygers.

At five o'clock they arrived on board, and gave us the recital of this disastrous event. At that moment we had round us 100 canoes, the natives in which, were selling their provisions with a security which proved their innocence: but they were the brothers, children, and fellow countrymen of these barbarous assassins; and I confess, I had recourse to all my reason,

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son, to restrain the rage which animated me, and to prevent our ship's companies from murdering them. Already were the soldiers unlashng the guns and flying to arms: I checked these movements, which were nevertheless very pardonable, and ordered a single gun, loaded only with powder, to be fired, to give notice to the canoes to keep off. A small canoe from the coast, probably made them acquainted with what had happened; for in less than an hour not a single one was to be seen. An Indian who was on the quarter-deck of my frigate when our boat arrived, was by my orders arrested and put in irons; the morrow, having gone nearer the coast, I gave him leave to jump into the sea: the confidence with which he remained in the frigate being an unequivocal proof of his innocence.

It was my first intention to give orders for a new expedition, to avenge my unhappy companions, and recover the wrecks of the boats. With this view, I approached the coast in search of an anchorage; but I only found the same bottom of coral, with a swell setting in shore and breaking on the reefs; besides, the creek where the massacre took place, was a deep bight in the island, and seemed scarcely possible to approach within gun shot. M. Boutin, whose wounds still kept him to his bed, but whose mind was in full vigour, represented to me also, that such was the situation of the bay, that should our boats unfortunately run aground, it was probable not a man would return, for the trees which grow almost close to the sea-side, sheltering the Indians from our musquetry, would leave such as might be disembarked, exposed to a shower of stones, the more difficult to avoid, as being slung with great power and skill; their effect was nearly the same as our balls, and had the advantage over them of coming in more rapid succession. M. de Vaujuas was also of the same opinion. I would not, however, give my assent, until thoroughly convin-

ced of the impossibility of anchoring within gun shot of the village. I passed two days in plying before the bay, where I still saw to windward, the wrecks of our long-boats aground on the sand, and an immense number of Indians round them. What appeared very unaccountable was, that during this time 5 or 6 canoes put off from the coast, and came with pigs, pigeons, and cocoa nuts to offer us in exchange: I was every moment under the necessity of repressing my anger, not to order them to be sunk. These Indians, ignorant of our having any arms that could carry further than our muskets, remained without fear 50 toises from our ships, and offered their provisions with the most perfect security. Our gestures not encouraging their approach, they thus passed a whole hour in the afternoon of the 12th December. Raillery succeeded their offers of traffick, and I soon perceived many other canoes detached from the bank to join them. As they thought themselves secure from our guns, and every thing evinced that I must soon be obliged to lay aside my principles of moderation, I ordered a gun to be fired in the midst of them. My orders were executed with the greatest precision; the ball dashed the water into the canoes, which in a moment hastened to shore, drawing with them in their flight those who had just quitted it.

It grieved me to tear myself from so horrible a place, and leave the bodies of my murdered companions behind; I lost an old friend, a man of sense, judgment and information, and one of the best officers in the French navy; his humanity was the cause of his death: could he but have brought himself to have given orders to fire upon those Indians who first entered the water to surround his boats, his loss, that of M. de Lamanon, and the ten other victims of Indian brutality, would never have happened: besides twenty others, who were grievously wounded. Thus this event deprived us for a time of 32 men, and the

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two long-boats, which were the only ones capable of containing any number of armed men for the purpose of making a descent. These considerations were a guide for my future conduct, and the smallest check would have obliged me to burn one of the frigates to man the other. I had indeed the frame of a long-boat on board, but I could not put it together without going into port. To have satisfied my revenge in massacring some Indians, I must at same time have destroyed sunk, or blown to pieces 100 canoes, containing more than 500 souls; but I was afraid of being deceived in marking out my victims, and the dictates of conscience preserved their lives. Those in whom this recital may call to mind the catastrophe of Captain Cook, must recollect that his ships were moored in the bay of Karakakooa: that their guns made them masters of the sea-shore: that the law was in their own hands, and they could threaten with destruction all the canoes left on the beach, as well as the villages bordering on the coast: we were, on the contrary, at sea out of gun shot, obliged to keep at a distance from the coast, for fear of being becalmed; a heavy swell always carried us towards the reefs, where we doubtless might have anchored with iron mooring chains, but even this was out of the reach of gun shot of the village; in short, the swell was sufficient to cut the cable at the hawse-hole, and thereby expose the frigates to the most imminent danger. I thus exhausted very calculation of probability before I left this fatal island; and it was clearly demonstrated that anchoring was impracticable, and the expedition rash, without the assistance of the frigates: success had even been of no avail, as there certainly was not a man left alive in the Indians' power, our boats were broken up and aground, and we had the means of replacing them on board. I consequently on the 13th, steered for a third island which I saw bearing W. by N. W., and which, owing to bad

weather, M. Bougainville had only seen from the mast head; a channel, nine leagues in width, separates it from that of Maouna. The Indians had given us the names of the ten islands that composed their archipelago: as also a rude sketch on paper of their situation; this, although it cannot be depended upon, renders it nevertheless probable, that the people of these different islands form a kind of confederacy, and frequently hold communications with each other. Our later discoveries did not leave a doubt of this archipelago being more considerable both in population and abundance of provisions, than that of the Society Islands; it is probable even that there may be good anchorage: but having no long-boat, and seeing what a state of ferment the crews were in, I resolved to come no more to an anchor until my arrival at Botany Bay, in New Holland, where I proposed building a new long-boat with the frame I had on board. I wished, nevertheless, for the advancement of geography, to explore the different islands I might fall in with, and determine their exact longitude and latitude: I likewise hoped to traffick with the Indians, by standing off and on near their islands. I willingly leave to others the trouble of writing an uninteresting history of these barbarians. A stay of 24 hours, and narrative of our misfortunes, are sufficient to shew their atrocious manners, their arts, and the productions of one of the finest countries under heaven.

Before I continue the account of our track along the islands of the archipelago, I think it proper to give the narrative of M. de Vaujuas, who commanded the retreat from the bay of Maouna, and although he only went ashore as a convalescent and not upon duty, circumstances gave him strength, and he did not leave the bay before he was well assured that not a single Frenchman remained alive in the power of the Indians.

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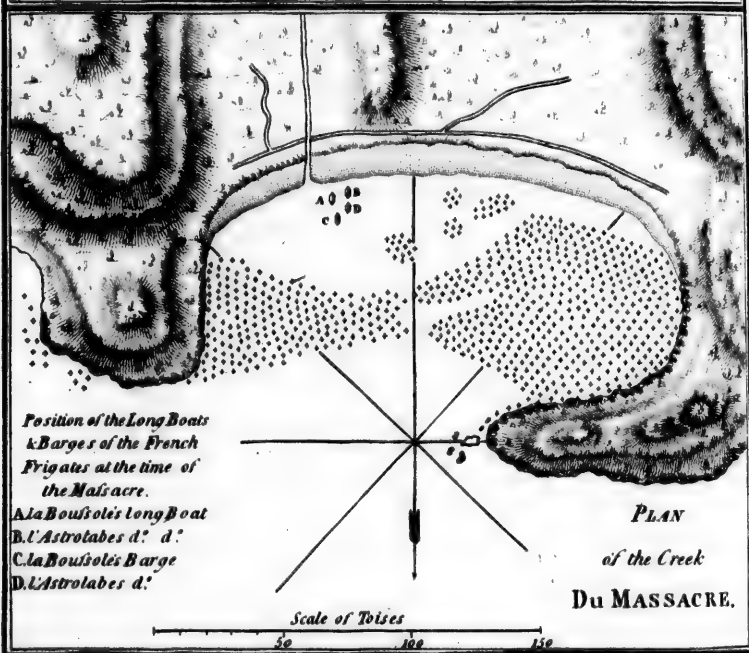
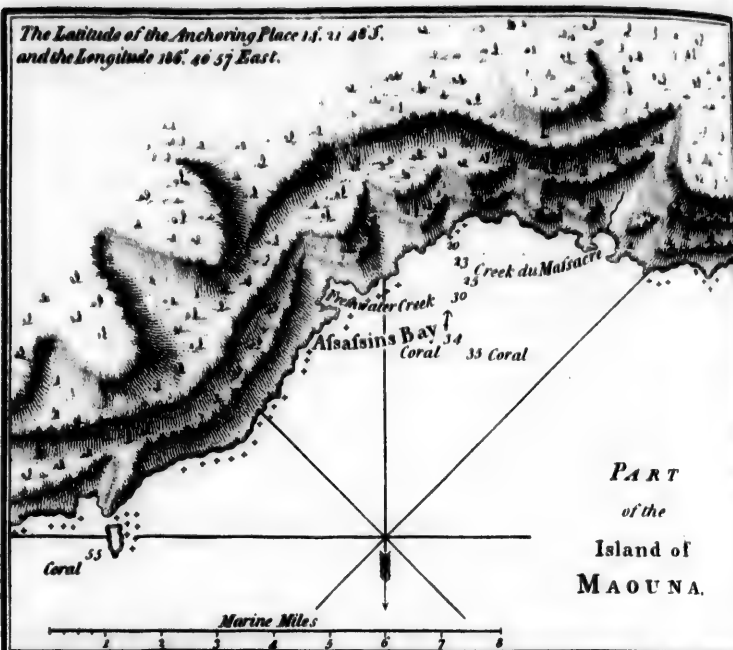
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*The Latitude of the Anchoring Place is 21° 48' S.
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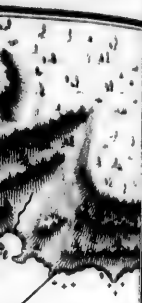
Published July 10th 1798. by J. Stockdale.

NARRATIVE OF M. DE VAUJAS.

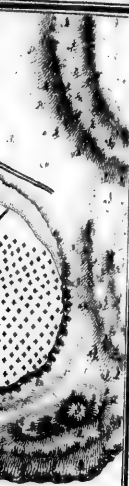
" Sunday the 11th December at 11 o'clock in the forenoon, M. de la Pérouse sent his long boat and barge, laden with water-casks, with a detachment of armed soldiers, to make part of an expedition under the command of M. de Langle. M. Boutin had already received instructions relative to the means of keeping order, and providing for our security when the boats should reach the shore. At the same hour our captain hoisted out his boats, and likewise had stowed them with water-casks and provided with arms. At half past twelve, the frigates being three quarters of a league from shore, on the larboard tacks, the boats put off to water in a creek which had been reconnoitred by M. de Langle. This watering place was to leeward of that where they had before been, M. de Langle having thought it preferable from its appearing less inhabited and equally commodious; but the former had the advantage of a more easy entrance, and sufficient depth of water for the boats to run no risk of getting aground.

" M. de Langle proposed to me, although a convalescent and very weak, to accompany him, and walk and take the air on shore; he took the command of the barge himself, entrusting the long-boat to the care of M. le Gobien. That of the Bouffole was commanded by M. Boutin, and the barge by M. Mouton. M. Colinet and Father Receveur, both invalids; Messieurs de Lamanon, la Martinière and Lavaux, accompanied us, as well as several others from the two frigates; making, the two barges crews included, a detachment of sixty-one persons.

" When on our way, we saw with concern a great part of the canoes along side the ship follow us, and come into the same creek; we also saw along the



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“ rocks which divide it from the neighbouring bays,
“ many natives who had assembled from the villages,
“ arriving at the reef which forms the creek of the
“ watering place, and leaves but a narrow and shallow
“ passage for boats, we found it was low water, and
“ that the boats could not enter without running
“ aground, this they accordingly did at half a musket
“ shot from the beach, which we could only get near
“ by pushing them forward with our oars. This bay
“ had been seen by the captain in the most favourable
“ point of view, from the tide when he examined
“ it not being so low.

“ The savages, on our arrival, who lined the coast
“ to the number of seven or eight hundred, threw into
“ the water many branches of the tree, from which the
“ islanders of the South Sea extract their intoxicating
“ beverage, as a token of peace. On landing, M.
“ de Langle gave orders that each boat should be
“ guarded by an armed soldier and sailor, while the
“ crews of the long-boats were employed in filling
“ water, under the protection of a double line of mus-
“ queeteers, who extended from the boats to the water-
“ ing place. The casks were filled and quietly put on
“ board, the islanders being kept in tolerable awe by the
“ soldiers: there was among them a certain number
“ of women, and very young girls, who offered them-
“ selves to us in the most indecent manner, and
“ whose advances were not altogether rejected; we
“ saw but few children there.

“ Towards the end of our work the natives in-
“ creased in number, and became more troublesome,
“ which circumstance determined M. de Langle
“ to give up his first idea of trafficking for provi-
“ sions with them, and he gave orders for embark-
“ ing immediately; but before this, and what I
“ think was the origin of our misfortune, he pre-
“ sented some beads to a kind of Chiefs, who had
“ contributed in keeping the islanders at a little dis-
“ tance.

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" tance. We were, for all that, certain that this
" policy was mere mockery; and that if these Chiefs
" had any actual authority, it extended only over
" very few. These presents, distributed to five or
" six individuals, excited the discontent of all the
" others. From that time a general murmur arose,
" and it was no longer in our power to keep them
" quiet: they notwithstanding let us get into our
" boats, but part of them followed us into the wa-
" ter, while the others collected stones on the
" beach.

" As the boats were aground at a little distance from
" the strand, we were obliged to go up to our middles
" in water to get at them, in doing which many sol-
" diers wetted their arms. In this critical situation
" commenced the horrid scene of which I am go-
" ing to speak. Hardly had we got into the boats,
" when M. de Langle gave orders for pushing them
" off and taking up the grapnel, which many ro-
" bust islanders resisted, by laying hold of the rope.
" The captain being witness to this resistance, seeing
" the tumult increase, and some stones having
" reached him, fired his gun into the air, to endea-
" vour to intimidate them; which, so far from suc-
" ceeding, they made the signal for a general at-
" tack. A shower of stones, thrown with equal
" force and celerity, poured down upon us; the
" combat on both sides commenced, and became ge-
" neral. Those whose muskets would go off,
" brought many of these ferocious Indians to the
" ground, but the others shewing not the least
" concern, seemed to redouble their vigour; one
" party of whom approached the boats, whilst the
" others, to the amount of six or seven hundred,
" continued to stone us in the most dreadful and
" murderous manner.

" On the first act of hostility I threw myself into
" the sea, to get to the Astrolabe's boat, which was
" destitute of officers. The circumstance of the

“ moment gave me strength for the short distance I
“ had to go ; and notwithstanding my weak state,
“ and some blows I had received from stones at the
“ time, I got on board without any assistance. I
“ saw, with despair, that there was scarce a musket
“ but was wet, and that all that I could do was to
“ endeavour to get her afloat as soon as possible,
“ without the reef. The combat, however, went on ;
“ and the enormous stones flung by the savages,
“ were always wounding some of us ; and when-
“ ever a wounded man fell overboard by the side
“ where the savages were, he was instantly put an
“ end to with clubs or paddles.

“ M. de Langle fell the first victim to these bar-
“ barians, whom he had never treated otherwise
“ than well. At the beginning of the attack he was
“ knocked, bleeding, over the bow of the boat,
“ where he was standing, into the sea, together
“ with the master at arms and carpenter, who were
“ both at his side. The fury with which they threw
“ themselves on the captain, saved the two latter,
“ who succeeded in gaining the barge. Those who
“ were in the long-boats soon underwent the same
“ fate as our unhappy chief, except a few, who,
“ by escaping their observation, were enabled to
“ reach the reef, from whence they swam towards
“ the barges. Within four minutes had the islanders
“ made themselves masters of the two long-boats, and
“ I had the pain of seeing my unfortunate companions
“ murdered, without being able to give them the
“ least assistance. The Astrolabe's barge was still
“ within the reef, and I waited in momentary ex-
“ pectation of seeing it undergo the fate of the long-
“ boats ; but the avidity of the islanders saved it, the
“ greater number precipitating themselves into the
“ long-boats, and the others contenting themselves
“ with pelting us with stones : many, however, waited
“ for us at the mouth of the channel, and on the reefs.

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“ Although the swell was heavy, and the wind right
“ on end, we succeeded, notwithstanding a shower
“ of stones, and the dangerous wounds many of us had
“ received, in quitting this fatal place, and joining M.
“ Mouton, commander of the Bouffole's barge, who,
“ by throwing his water casks overboard, had lightened
“ her to make room for those who could get on board.
“ I had taken into that of the Astrolabe, Messrs. Bou-
“ tin, Colinet, and several other persons. Those
“ who had saved themselves, were all more or less
“ wounded, so that the boats were defenceless; and
“ it was impossible to think of returning into a bay,
“ from whence we thought ourselves too happy in
“ escaping, to make head against a thousand enraged
“ barbarians; it would have been exposing ourselves,
“ without the least utility, to certain death. We
“ therefore steered towards the two frigates, which,
“ at three o'clock, when the massacre took place,
“ had made a tack off shore, never thinking that
“ we were in the least danger. The breeze was
“ fresh, and the frigates far to windward, an un-
“ fortunate circumstance for us, and particularly
“ for those whose wounds required immediate dress-
“ ing. At four o'clock they tacked, and stood in
“ again for shore. We were no sooner clear of the
“ reefs, then I hauled my wind, to get off from
“ the coast, and flung every thing overboard that
“ could retard the boat's way, she being full of people.
“ Fortunately the islanders, taken up with pillaging
“ the long-boats, did not think of pursuing us. Our
“ whole defence consisted in four or five cutlasses,
“ and two or three discharges of musquetry; a fee-
“ ble resource against two or three hundred barba-
“ rians, armed with clubs and stones, in very light
“ canoes, which they might keep at what distance
“ they thought proper. Some few of them left the
“ bay shortly after us, but they sailed coastways,
“ from whence one of them set off to give notice to
“ those

“ those who were along-side of the frigates. This
 “ canoe had the insolence, in passing, to make
 “ menacing signals; but my position obliged me to
 “ suspend my revenge, and reserve the feeble means
 “ which remained for our own defence.

“ We were no sooner in the offing, than I pulled
 “ with the wind right on end, towards the frigates,
 “ we hoisted a red handkerchief at the mast head, and,
 “ as we approached, fired our three last musquets.
 “ M. Mouton also made, with two handkerchiefs,
 “ signal for assistance; but we were not perceived
 “ till close along-side, when the *Astrolabe*, which
 “ was nearest to us, bore down. At half past four I
 “ left on board her the worst wounded, as did M.
 “ Mouton, and we immediately repaired on board
 “ the *Bouffole*, when I informed the commodore of
 “ this disastrous event. After the precautions with
 “ which his prudence inspired him, and the just
 “ confidence he had in M. de Langle, his surprise
 “ was extreme; and as to his distress, I can only
 “ compare it with my own. This misfortune brought
 “ strongly to our recollection that of the 13th of
 “ July, 1786, and completed the bitterness of our
 “ voyage; still happy in this last unfortunate occur-
 “ rence, in having saved the greatest part of those
 “ who embarked! Had not the thirst after pillage
 “ checked, or for a moment fixed the rage of the
 “ savages, not one of us would have escaped.

“ It is impossible to express the sensation which
 “ this terrible event caused in both frigates. The
 “ death of M. de Langle, who had the confidence
 “ and esteem of his people, threw all the *Astro-*
 “ *labe's* crew into despair. The islanders, who were
 “ along-side, when I came on board, and ignorant
 “ of what had happened, were on the point of falling
 “ sacrifices to the vengeance of the sailors, whom
 “ we had the greatest difficulty to keep within
 “ bounds. The general affliction which prevailed

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" on board, is the best funeral panygeric which can
 " be pronounced on the captain. For my own part,
 " I lost in him rather a friend than a commander ; and
 " the interest he shewed towards me, will make me
 " lament his loss while I have breath. Happy should
 " I have been in affording him proof of my attach-
 " ment and gratitude, by sacrificing my life for his !
 " But this brave officer, more exposed than the
 " others, was the first prey of the ferocious brutes
 " that assailed us. In the weak state in which my
 " recovery left me, I went ashore unarmed, under
 " the protection of others ; all the ammunition was
 " either exhausted, or wet, before I got to the barge,
 " and when there I could only give, unhappily,
 " orders too unavailing.

" I should not do justice to those who were, like
 " myself, fortunate enough to save themselves, did
 " I not declare that they conducted themselves with
 " the utmost possible bravery and coolness. Messrs.
 " Boutin and Colinet, who, notwithstanding their
 " severe wounds, had still their usual presence of
 " mind, kindly offered their services, which I de-
 " rived great advantage from ; and I was also ably
 " seconded by M. le Gobien, who was the last man
 " that left the boat, and the intrepidity of whose
 " example and exhortations contributed not a little
 " to reanimate such of the sailors as might feel them-
 " selves dismayed. The warrant officers, sailors,
 " and soldiers, executed the orders received with
 " equal zeal and punctuality ; and M. Mouton had
 " no less reason to be satisfied with the barge's crew
 " of the *Bouffole*.

" All those who were on shore can bear witness,
 " like me, that no violence, no imprudence on our
 " side, preceded the attack of the savages. Our
 " captain had, with respect to this, issued the most
 " strict orders, which no one disobeyed.

(Signed)

" VAUJAUS."

Return of the persons massacred by the Savages of the Island of Maouna, on the 11th of December, 1787.

OF THE ASTROLABE.

Officers.—M. de Langle, Post Captain, commander; Yves Humon, John Redellec, Francis Feret, Laurence Robin, and a Chinese, *seamen*.

Lewis David, quarter-gunner; John Geraud, servant.

OF THE BOUSSELE.

M. de Lamanon, natural philosopher and naturalist; Peter Talin, gunner; Andrew Roth, and Joseph Rayes, quarter-gunners.

All the others, in the party, were more or less severely wounded.

CHAP. XXV.

DEPARTURE FROM THE ISLAND OF MAOUNA—DESCRIPTION OF THE ISLAND OF OYOLAVA—EXCHANGES WITH ITS INHABITANTS—SEE THE ISLAND OF POLA—NEW DETAILS CONCERNING THE MANNERS, ARTS, AND CUSTOMS OF THE NATIVES OF THESE ISLANDS, AND THE PRODUCE OF THEIR SOIL—FALL IN WITH COCOA-NUT AND TRAITOR ISLANDS.

ON the 14th of December, I stood for the Island of Oyolava, which we got sight of five days before we reached the anchorage that proved so fatal to us. M. de Bougainville had seen its southern part, as laid down in his plan of this archipelago, at a very great distance. This island is separated from that of Maouna, or *the Massacre*, by a channel about nine leagues in width; and the Island of Otaheite

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can hardly be compared with it for beauty, extent, fertility, and population. At the distance of three leagues from its N. E. point, we were surrounded by an innumerable quantity of canoes, laden with bread fruit, cocoa-nuts, bananas, sugar canes, pigeons and gallinules, but very few pigs. The inhabitants bore a great resemblance to those of the Island of Maouna, who had so detestably betrayed us; their dress, features, and gigantic stature, was so nearly alike, that our sailors fancied that they recognized many of the assassins, and I had not a little trouble in preventing their being fired upon. But I was certain that they were blinded by rage and vengeance, which, if I did not think myself justified in wreaking on the canoes of the Island of Maouna itself, at the moment of being made acquainted with this horrible event, could not be justly exercised four days after, in another island, fifteen leagues from the field of battle. I therefore appeased their fermentation, and exchanges were continued. Much more tranquillity and honesty prevailed here, than at the Island of Maouna, the smallest injustice being punished by blows, or reprimanded by threatening words and gestures. At four o'clock in the afternoon, we hove to, opposite, perhaps, the most extensive village in any island of the South Sea, or rather abreast of a very extensive plain, covered with houses, from the summit of the mountains down to the banks of the sea. These mountains are nearly in the middle of the island, from whence the land inclines by a gentle declivity, presenting to the view of the ships an amphitheatre, covered with trees, huts, and verdure; the smoke rose from the heart of the village, as from a great city; the water was covered by canoes, all which endeavoured to get near our ships; several were only paddled by idle lookers on, who, having nothing to sell, rowed round our frigates, and appeared to

to have nothing to do but enjoy the spectacle we afforded them.

From women and children being among them, it might be presumed that they had no sinister intentions; but we had too powerful motives for not trusting to these appearances, and were ready to repel the most trifling act of hostility, in a manner which would have rendered navigators formidable to these islanders. I am strongly inclined to believe that we are the first with whom these people have ever trafficked. They had no idea of the use of iron, constantly refusing that which we offered them, and preferring a single glass bead to an axe or six inch nail. Rich in the wealth of nature, they, in their exchange, only sought for superfluities and objects of luxury. Among a great number of women, I observed two or three agreeable countenances, which might be supposed to have served as a model for the print of the *young woman bearing presents*, in Cook's third voyage; their hair ornamented with flowers, and a green ribbon, like a *bandeau*, was plaited with grass and moss; their shape was elegant and their arms well turned and exactly proportioned; their eyes, countenances, and gestures, bespoke their mildness; while on those of the men, were only depicted surprise and ferocity.

At dusk we stood along the island, and the canoes returned towards land; the coast, covered with breakers, offering no shelter to our ships, because the sea from the N. E. rises and beats with violence upon the north coast, along which we were steering. Had my intention been to anchor, I might probably have found excellent shelter on the west side. Navigators in general, within the tropics, must only look to leeward of the islands for good anchorage. The whole of the next day there was a dead calm, with much lightning, followed by thunder and rain. We

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were boarded by but very few canoes, which induced me to think they had heard of the event at the island of Maouna. However as it was possible that the canoes had been restrained from leaving their ports by the rain and lightning, this could be only conjecture, but it acquired great probability on the 17th, when running along the island of Pola, which we went much nearer to than the preceding, we were visited by no canoe whatever. I then judged that these people had not yet made sufficient progress in morality to know that the culpable alone ought to suffer, and that the punishment of the real assassins, would have satisfied our revenge. The Island of Pola is somewhat less, but equally beautiful with that of Oyolava, and is only separated therefrom by a channel about four leagues in width, itself intersected by two tolerably large islands, one of which, very low and woody, is probably inhabited. The north coast of Pola, like that of the other islands in the archipelago, is inaccessible to ships, but in doubling its western point is found a calm sea, without breakers, which promises excellent roadsteads.

We had learnt from the Islanders of Maouna that the Navigators' Archipelago was composed of ten islands, viz. Opoun, the most easterly; Léoné, Fanfoué, Maouna, Oyolava, Calinaffé, Pola, Shika, Ossamo and Ouera. The position of the three last is unknown to us. The Indians, on the plan they traced of this archipelago, placed them south of Oyolava, but had that been their actual situation, it is certain that, according to the course De Bougainville pursued, he must have seen them. Notwithstanding M. Blondela's patience and sagacity, who took particular pains to get some geographical illustrations from the islanders, he could not hazard the least conjecture as to their bearing; but the sequel of our voyage taught us, that two of the three might be Cocoa and Trai-

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tor * Islands, situate, according to Captain Wallis's observations, $11^{\circ} 5'$ too far to the west.

Opoun, the most southerly as well as easterly of these islands, is in lat. $14^{\circ} 7'$ S. and in long. $117^{\circ} 27' 7''$ W. Casting the eye upon the map will shew the respective position, size, and relative distance of these islands; one point of land of each of which has been subjected to exact determinations of latitude and longitude, marked on the same plan, and deduced from the result of several lunar observations, which served for correcting the error of our time-pieces. The discovery of these islands has, by several geographers, been attributed to Roggewein, which, according to them, he in 1721, named Beauman's Islands; but neither the historical particulars relating to these people, nor the geographical position assigned to those islands by the historian of Roggewein's voyage, † corroborate that opinion. His own words on this subject are: "We discovered three islands at the same time in the 12th degree of latitude, of a very agreeable appearance; we found them stocked with fine fruit trees, and herbs, vegetables, and plants of every description; the islanders who came to meet our vessels offered us all sorts of fish, cocoa nuts, bananas, and other excellent fruit. These islands must be well peopled, the beach being on our arrival covered with many thousands of men and women, the greater part of the former carrying bows and arrows. All the inhabitants are white, and only differ from Europeans by some of them being much sun-burnt. They seemed good kind of people, lively and gay in conversation, kind and humane towards each other; and nothing of the savage in their manners. Their

* Wallis named these Islands, Boscawen and Keppel.

† The historical account of Roggewein's Voyage, brought by the president de Brosse, was written in French in 1739, by a German, born at Mecklenbourg, Serjeant Major of the troops embarked on board Roggewein's fleet.

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" bodies were not painted like those we had before
" seen; they were clothed from the waist to the
" ancle with fringes of silken stuff, artfully wrought;
" their heads were covered with a hat of the same
" kind, very fine and broad, to protect them from the
" heat of the sun. Some of these islands were ten,
" fourteen, and even twenty miles in circumference.
" We called them Beauman's Islands, from the name
" of the captain of the ship Tienhoven, who first saw
" them. It must be confessed (adds the author) that
" this is the most civilized and honest nation we have
" met with in the islands of the South Sea. All the
" coasts of these islands have good anchorage in from
" thirteen to twenty fathoms water."

These particulars, as will be seen by the sequel of this chapter, have scarcely any reference to those which we have to give concerning the people of Navigators' Islands. As the geographical situation is equally irrelevant, and a German chart still exists, whereon Roggewein's course is traced, and which places these islands in 15°, I am led to believe that Beauman's Islands are not the same with those to which M. de Bougainville has given the name of Navigators' Islands; it besides appears necessary that this name should be observed, to prevent a confusion being introduced into geography, whereby the advancement of that science may be materially injured. These islands are situated in about the 14th degree of S. lat. and between 171 and 175 degrees of W. long. from one of the first archipelagoes of the South Sea, as interesting from the arts, production, and population, as those of the Society or Friendly Islands, of which the English navigators have given us such a description, as leaves nothing to be wished for on that head. As to the morality of the people, *altho'* only with them for an instant, our misfortunes have made us practically acquainted with their character, and we do not hesitate to affirm that it would be in-
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effectual to endeavour to excite by kindness the gratitude of their ferocious souls, which are only to be kept in awe by fear.

They are the tallest and best made islanders we have hitherto met with, their usual height being five feet nine, ten, or eleven inches; but their stature is less surprising than the colossal proportions of the different parts of their body. Our curiosity, which frequently led us to measure them, made them often compare their bodily strength with ours. These comparisons were not much to our advantage; and we are perhaps indebted for all our misfortunes to the idea of individual superiority which they retained, from these different trials. Their countenances frequently seemed to me to express a sentiment of disdain, which I thought to destroy, by ordering our fire arms to be made use of before them: but this object I could not attain without pointing them at some human victims, for they otherwise considered the noise as play, and the proof as a joke.

Very few among these islanders were under the size I have mentioned: I measured some who were only five feet four inches, but they are the dwarfs of the country; but although their stature nearly approaches our own, nevertheless their strong sinewy arms, broad chests, and their legs and thighs are of a very different proportion. They may be said to be, when compared to Europeans, what the Danish horses are to those of the different provinces of France.

The bodies of the men are painted or tattooed, so that they might be mistaken for cloathed, although almost naked: they have only a girdle of sea weeds round their loins, which hangs down to their knees, and reminds us of the river gods in fabulous history, which are delineated with rushes hanging round them. Their hair is very long, and they twist it many times round their head, thus adding to the ferociousness

rociousness of their countenance, always expressive either of surprize or anger. The least dispute among them is followed by blows of sticks, clubs, or paddles, which often, without doubt, costs the combatants their lives. They are covered with scars, a consequence of these particular quarrels. The size of the women is proportionate to that of the men, being tall, slender, and not devoid of grace; but they lose, while yet in their prime, that sweetness of expression, that elegance of form, which nature has not withheld even from these barbarians, although she seems to have reluctantly bestowed them only for a moment. Among a great number of women whom I had an opportunity of seeing, I distinguished but three that could be called really pretty; the gross effrontery of the others, the indecency of their motions, and the disgusting offers they made of their favours, rendered them very proper for the mothers or wives of the cruel beings that surrounded us. As the history of our voyage may add a few pages to that of *Man*, I shall not expunge some traits which might seem indecent in any other work. I shall begin by observing that the very small number of young and pretty females, whom I have already spoken of, soon fixed the attention of several Frenchmen, who, notwithstanding my prohibition, endeavoured to get connected with them. Their looks expressed desires not very difficult to divine, the negotiation for which was carried on by some elderly women. The altar was prepared in the handsomest hut in the village: all the blinds were let down, and the inquisitive excluded. The victim was laid in the arms of an old man, who, during the ceremony, exhorted her to moderate the expression of her pain; the matrons sang and howled, and the sacrifice was consummated in their presence, and under the auspices of the old man, who acted both as priest and altar. All the women and children of the village came about the

house, gently lifting up the lattices, and looking for the smallest crevices in the mats to enjoy this sight. Whatever preceding navigators may say, I am convinced that in Navigators' Islands, at least, the young girls, before they are married, keep their favours to themselves, and that their compliance does not then dishonour them; it is even more than probable that in marrying they are not required to give any account of their past conduct; but I doubt not they are obliged to be more reserved when they have a husband.

These people have certain arts which they cultivate with success. I have already spoken of the elegant form they give their huts; they disdain, and not without reason, our iron instruments; for they give a perfect finishing to their work with tools made of very fine close kind of basalt, in the form of an adze. For a few beads they sold us three-footed wooden dishes, cut out of the solid piece, and so polished, as to have the appearance of being coated by the finest varnish. It would have taken good European workmen many days to execute a similar performance, which, for want of proper instruments, must have cost them several months' labour; they, notwithstanding, put hardly any price upon it, the time it occupies being of little value. The fruit trees and nutritious roots growing around them, make their subsistence, as well as that of their pigs, dogs, and fowls, secure; and if they sometimes give themselves up for a short time to work, it is only to procure enjoyments rather agreeable than of use. They manufacture extremely fine mats and paper stuffs. I observed two or three of these islanders, who appeared to be chiefs; they had, instead of a girdle of weeds about their waist, a piece of cloth hung round them, like a petticoat. The web is composed of real thread, extracted, no doubt, from some filamentous plant, such as the nettle or flax; it is made without
a shuttle.

a shuttle, and the threads absolutely pass between each other, like those of their mats. This cloth, which has all the suppleness and solidity of ours, is well adapted for the sails of their canoes; it seems to possess a superiority over the paper-stuff of the Society and Friendly Islands, which they also manufacture, and of which they sold us several pieces; they, however, make but little, and it is not much in use, the women preferring the fine mats I have just mentioned.

At first we discovered no affinity between their language and that of the people of the Society and Friendly Islands, whose vocabularies we had; but on more mature examination, we found that they spoke a similar dialect. One fact which may serve for some proof of it, and which confirms the opinion the English had on the origin of these inhabitants, is, that a young Manillese servant, born in the province of Tagayan, to the north of Manilla, understood and explained the greatest part of their words. We know the Tagayan, Tagale, and generally all the Philippine languages, are derived from the Malay, and this language, more widely diffused than that of either the Greeks or Romans, is common to the numerous nations inhabiting the islands of the South Sea. To me it is evident, that these different nations take their rise from Malay colonies, which at very remote periods reduced these islands under subjection; and the Chinese and Egyptians, with all their boasted antiquity, may perhaps be moderns in comparison to these. But let this be as it may, I am convinced that the aborigines of the Philippines, Formosa, New Guinea, New Britain, the Hebrides, Friendly Islands, &c. in the Southern hemisphere, and those of the Carolines, Mariannes and Sandwich Islands, in the Northern hemisphere, were this race of woolly headed people who are still to be found in the interior of the islands of Luconia and Formosa. They could not be subjected in New Guinea, New Britain, and

the New Hebrides, but were overcome in the islands more to the east, the centre of which being too small to afford them a retreat, they mixed with their conquerors, whence has resulted a very black race of people, whose colour still preserves some shades deeper than those of certain other families of the country, which they probably make a point of honour to keep unmixed. These two very distinct races struck me at Navigators' Islands, and this is the only origin I can attribute to them.

The descendants of the Malays, in these islands have acquired a vigour, strength, stature, and proportion which they do not derive from their forefathers, and which is undoubtedly owing to the abundance of food, mildness of climate, and influence of physical causes, which during a long series of generations, have been constantly in action. The arts which they perhaps may have introduced, will be lost for want of proper instruments and materials to exercise them; but the identity of language, like the clue of Ariadne, enables the observer to follow all the windings of this new labyrinth. The feudal government is also preserved here, that government which petty tyrants may reject, which for several ages has sullied Europe, the Gothic remains of which are still to be found in our laws, and are the medals which bear witness to our ancient barbarism; this government, I say, is the fittest for preserving a ferociousness of manners, because the most trifling concerns excite wars of one village upon another, which are carried on without magnanimity or courage; surprise and treachery are alternately made use of; and hence, in these unhappy countries, instead of meeting with generous open-hearted warriors, are found only the basest assassins. The Malays are even at this day the most perfidious people of Asia, and their children are still degenerate, because the same causes have prepared and produced the same effects. It will perhaps be objected, that it must

must have been very difficult for the Malays to make their way from west to east, to arrive at these different islands; but the westerly winds are at least as frequent as the easterly about the equator, in a zone of seven or eight degrees north and south, and they are so variable that the navigation is scarcely more difficult one way than the other. Besides, these different conquests did not take place at the same time. This people has extended by degrees, and gradually introduced that form of government which still exists in the peninsula of Malacca, at Java, Sumatra, Borneo, and all the countries subdued by this barbarous nation. Among fifteen or eighteen hundred inhabitants that we had the opportunity of observing, at least thirty had the appearance of chiefs, keeping up a kind of police, and dealing their blows pretty liberally with sticks, but the order they had the appearance of wishing to establish, was transgressed in less than a minute; never were sovereigns worse obeyed; never were disorders more frequently excited by anarchy and insubordination.

M. de Bougainville has not denominated them *the Navigators* without reason; all their voyages being made in canoes, and never so much as walking even from one village to another. The villages are all situated in creeks on the sea side, and have no paths but for penetrating into the interior of the country. The islands where we touched were clothed up to the very summit with trees laden with fruit, on which wood-pigeons, and green, rose, and different coloured turtle-doves reposed; we also saw some beautiful parroquets or species of blackbirds, and corn partridges. These islanders amuse themselves in their leisure hours by taming birds; their houses were full of wood-pigeons, which they bartered with us by hundreds; they likewise sold us 300 gallinules, of the most beautiful plumage.

Their canoes have outriggers, are very small, and
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commonly hold but five or six persons, a very small number may, however, contain as many as fourteen. They do not appear to merit the eulogium bestowed by navigators on their swiftness, which I do not believe exceeds seven knots an hour under sail, and they could not keep up to us with paddles, when we made but four miles an hour. These Indians are such expert swimmers, that their canoes seem only to serve them to rest in. As they fill on the least false movement, they are every instant obliged to jump into the sea, take their sinking canoes upon their shoulders and empty out the water. They sometimes join two together by means of a piece of wood laid across, in which is placed a step to receive the mast. In this manner they are not so ticklish, and the natives can preserve their provisions during long voyages. Their sails are of mat, or of matted cloth, are spread by a sprit, and do not deserve particular notice.

Their only modes of fishing are with hook and line, and sweep net; they sold us some nets, and baits of mother of pearl and white shell, very curiously wrought. These instruments are in the form of flying fish, and serve as a case for a hook of tortoise shell, strong enough to hold a tunny, boneta, or dorado. They change the largest fish for a few glass beads, and it was clear by their eagerness, they were in no fear of wanting food.

The islands I have been at, of this archipelago, appeared to be volcanic; all the stones on the beach upon which the sea breaks with such force, as to throw the water more than fifty feet high, being only pieces of lava, round basaltic or coral, by which the island is wholly surrounded. This coral leaves in the middle of most of the creeks, a narrow passage wide enough for canoes, or even for boats and long-boats, thus forming little harbours for the navy of the islanders, who, however, never leave their canoes in the water, but on coming on shore draw them up near their

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their houses, under the shade of trees; as they are so light that two men can carry them on their shoulders without difficulty.

The most lively imagination would find it difficult to paint situations more agreeable than their villages. All the houses are built under fruit trees, which keep them delightfully cool. They are seated on the side of a brook running down from the mountains, along which is a path leading into the interior of the island. The principal object of their architecture, is to protect them from the heat, and I have already said, that they knew how to join elegance with it. These houses, large enough for several families, are surrounded by lattices which they open on the windward, and shut on the sunny side. The Islanders sleep on very fine mats, perfectly clean, and completely out of the reach of damp. We saw no *morai* and can say nothing of their religious ceremonies.

These islands abound in pigs, dogs, fowls, birds, and fish, and are covered likewise with cocoa, goyava, and banana trees, and another tree bearing a large almond, which is eat roasted, and much resembles the chestnut in flavour. Sugar canes spontaneously grow on the banks of the rivers: but they are watery, and not so sweet as those of our colonies; this difference probably arises from their growing in the shade, and in too rich and uncultivated a soil. Here are likewise found some *fouches*, whose roots are nearly like those of the yam or *camagnoc*. However great the danger of penetrating the interior of the island, Messieurs de la Martinière and Collignon, rather followed the impulse of their zeal, than the dictates of prudence, and while the landing, which was so fatal to us took place, pushed into the island to make botanical researches. The Indians exacted a glass bead for every herb that M. de la Martinière picked up, and threatened to knock them down if they refused; pursued by a shower of stones, he at the moment of the

the massacre swam to the barge, with his bag of plants at his back, and thus succeeded in preserving them. Till then we had seen no arms but clubs, or *patow-patows*; but M. Boutin assured us that he had seen many bundles of arrows in their hands without any bow. I am inclined to believe that these arrows are only lances which they use to strike fish with; they would have been of far less dangerous effect in combat than stones of two or three pound weight, which they throw with inconceivable force and address. These islands are extremely fruitful, and I believe their population to be very considerable. The eastern ones, Opun, Léoné, and Fanfoué are small. The two last are only about five miles in circumference; but Maouna, Oyolava, and Pola, must be reckoned among the largest and most beautiful islands of the South Sea. The accounts of different navigators, present nothing to our imagination which can at all stand in competition with the beauty and great extent of the village to leeward, of which we lay to on the northern coast of Oyolava. Although it was almost night when we arrived, we were immediately surrounded by canoes, which either from curiosity or the desire of bartering with us, had left their harbours; many having no objects of traffic on board, came only to enjoy a sight so entirely new to them. Some of them extremely small and much ornamented, were capable of containing only one man; and as these went round about the ships without offering us any thing in exchange, we called them *whiskies*; they had their inconveniencies, the slightest touch of another canoe upsetting them in an instant. We likewise came very near to the great and superb island of Pola, but had no intercourse with its inhabitants. On coming round the western part of this last island, we perceived a smooth sea, which seemed to promise good anchorage, at least while the winds blew from the eastward; but the ferment among the crew

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was still too great to let me think of coming to an anchor. After what had happened, I could not prudently send the sailors on shore without arming every man with a musket, and putting a swivel in each boat; but then the consciousness of their own strength increasing their desire for revenge, might probably have induced them to repress the smallest act of injustice the islanders were guilty of, by firing upon them. Besides, in these bad anchoring grounds a ship is exposed to being lost, without a boat capable of carrying out an anchor whereby she may be warped out. These considerations made me resolve, as I have before said, not to anchor until I should reach Botany Bay, confining myself to such tracks, in these different archipelagoes, as might lead to new discoveries.

When we had doubled the western coast of the island of Pola, we saw no more land; not even the three islands which the natives had called Shika, Ossamo, and Ouera, and which they had laid down to the south of Oyolava. I used every effort to steer to the S. S. E., which I was at first prevented from by breezes from E. S. E. so light, that we ran but eight or ten leagues a day. They at last shifted successively to the N. and N. W. which enabled me to make in casting my course, and on the 20th I got sight of a round island due south from Oyolava, and nearly forty leagues off. M. de Bougainville, who had passed between these two islands, did not see the first, because he was some leagues too much to the north. A calm prevented me from nearing it this day, but the next I came within two miles, and saw two other islands to the south, which I at once knew to be the Cocoa and Traitors' Islands of Schouten. Cocoa Island is very high, in the form of a sugar loaf, covered with trees to the top, about a league in diameter. It is separated from Traitors' Island by a channel of about three miles across, intersected by an islet that we saw at the north-easterly point of the island, which

which is low and flat, and has only a high hill towards the middle : it is divided into two parts by a channel 150 toises wide at the mouth. Schouten had no opportunity for seeing it, as he must have been in the point of the compass where the passage is open ; we should not even have suspected its existence, had we not ran very close along this part of the island. We had no longer any doubt of these being the three islands (only two of which deserve the name) that formed part of the ten composing Navigators' Archipelago. As the wind blew very fresh from the N. W. and the weather bore a threatening aspect, we were not much surprised to see no canoe come along side, and I resolved to stand off and on all night, in order to reconnoitre the islands the next day, and barter for some refreshments with the islanders. The weather was squally, and the wind varying only from N. W. to N. N. W. I had perceived some breakers on the N. W. point of Little Traitors' Island, which made me gain a greater offing. At day break I neared this last mentioned island, which being low and more extensive than Cocoa Island, I thought must be better peopled, and at eight o'clock in the morning brought to, to the W. S. W. two miles from a large sandy bay in the western part of Great Traitors' Island, and where I had no doubt of finding anchorage, sheltered from the easterly winds.

About twenty canoes immediately left the coast, and approached the two frigates, for the purpose of making exchanges ; several likewise came out of the channel which divides Traitors' Island. They were loaded with the finest cocoa-nuts I had ever before seen, a few bananas, and some yams, and only had a small pig and three or four fowls. It is evident these Indians had already seen or heard speak of Europeans ; they approached without fear, traded with great honesty, and never refused, like the natives of Navigators' Archipelago, to give their fruits

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before they received payment for them ; they took pieces of iron and nails, with the same avidity as beads. They, however, spoke the same language, and had the same ferocious look ; their dress, manner of being tattooed, and canoes, were likewise similar, and no doubt could arise of their being the same people ; they differed, indeed, in all having two joints cut off from the little finger of the left hand, as in Navigators' Islands I never saw but two individuals who had undergone this amputation : they were likewise much shorter, and less gigantic ; this difference, no doubt, arises from the soil of these islands, which being less fertile, is also less favourable to the growth of the human species. Every island that we saw, called to mind some mark or other of treachery, on the part of the islanders. Roggewein's crew had been attacked and stoned at Recreation Islands, to the east of Navigators' Islands ; Schouten's crew, at Traitors' Island, which was in sight, and to the south of Maouna, where part of our own had been assassinated in so atrocious a manner. These reflections had changed our manner of acting, with respect to the Indians ; we repelled the most trifling thefts and injustice by force, shewing them, by the effect of our arms, that flight could not save them from our resentment : we refused to let them come on board, and threatened to punish with death those who would do it against our will. This conduct was a hundred times preferable to our first moderation, and if we had any thing to regret, it was that we had ever since our coming to them made use of principles of mildness and forbearance. Reason and common sense tell us that it is right to employ force against a man, who it is well known would be our assassin if he were not restrained by fear.

The 23d, at noon, while bartering with these Indians for cocoa-nuts, we were assailed by a very heavy squall from N. N. W. which dispersed the canoes :
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many were overfet, and, after having righted again, paddled away with their utmost strength to land. Notwithstanding the weather bore a menacing appearance, we made the circuit of Traitors' Island, to discover all its points, and take a correct plan of it. M. Dagelet had taken very good observations of the latitude, at noon, and in the morning, of the longitude of the two islands, which put it in his power to rectify the position Captain Wallis assigned them. At four o'clock I made the signal for steering S. S. E., towards the archipelago of the Friendly Islands; of which I proposed reconnoitring such as Captain Cook had not the opportunity of exploring. These must, according to his account, be to the north of Inahomooka.

CHAP. XXVI.

DEPARTURE FROM NAVIGATORS' ISLANDS—WE DIRECT OUR ROUTE TOWARDS THE FRIENDLY ISLANDS—FALL IN WITH THE ISLAND OF VAVAO, AND DIFFERENT ISLANDS OF THIS ARCHIPELAGO VERY INACCURATELY LAID DOWN ON THE CHARTS—THE INHABITANTS OF TONGATABOO HASTEN TO COME ON BOARD AND TRADE WITH US—WE ANCHOR AT NORFOLK ISLAND—DESCRIPTION OF THAT ISLAND—ARRIVAL AT ROTANY BAY.

THE night after our departure from Traitors' Island was dreadful; the winds shifted, and blew hard from the west, with a great deal of rain. As, at sun-set, the extent of the horizon was not one league, I lay to until day light, with the ship's head to the S. S. W., the westerly wind still continuing violent, with abundance of rain.

All those who had symptoms of scurvy suffered prodigiously

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prodigiously from the damp. Not one of the crew was attacked by this disease, but the officers, and particularly our servants, began to feel its advances: I attributed it to the scarcity of fresh provisions, which the sailors were less affected by than the servants, who had never been at sea, and were not accustomed to do without it. One of the name of David, the gun-room cook, died, on the 10th, of a scorbutic dropsy. Since leaving Brest, no one on board the *Boussole* had died a natural death, and had we only made an ordinary voyage round the world, we might have returned to Europe without the loss of a single man. The last months indeed of a voyage are the most difficult to sustain, the body grows weaker by time, and the provisions spoil; but if, in the length of voyages undertaken for the purpose of making discoveries, there are bounds which cannot be passed, it is important to know those whereto it is possible to attain; and, I believe, that on our return to Europe, our experience on this head will be complete. Of all the known preservatives against scurvy, I think that molasses and spruce-beer are most efficacious. Our ships' companies constantly drank them in hot climates: a bottle per man was daily distributed, with half a pint of wine, and a small glass of brandy, mixed with a great deal of water; this made their other provisions palatable. The quantity of hogs we procured at Maoua was but a transitory resource: as we could neither salt them, because they were too small, nor keep them alive for want of victuals to feed them on, I determined to distribute some twice a day to the crew, when the swelling of the legs, and every scorbutic symptom disappeared. This new regimen had the same effect on our health as a long stay in port, which proves, that sailors have less urgent need of land air than salubrious food.

The N. N. W. winds followed us beyond the archipelago of the Friendly Islands, always accompa-
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nied with rain, and often as strong as the west winds which are met with in winter on the coast of Brittany. We very well knew that the winter season had commenced, and, consequently, storms and hurricanes; but we were not prepared for such continual bad weather. The 27th December we discovered the island of Vavao, the northern point of which, at noon, bore exactly west; our latitude was $18^{\circ} 34'$. This island, which Captain Cook had never been at, but had been informed of by the inhabitants of the Friendly Islands, is one of the most considerable of this archipelago, nearly equalling in extent that of Tongataboo; but it has this advantage over it, that from being more elevated, it is never in want of fresh water. It stands in the centre of a number of other islands, which must retain the names Captain Cook has given a list of, but which would be very difficult for us to class. We could not, without injustice, claim the honour of this discovery, which is due to Maurelle, the pilot, who has added to the archipelago of the Friendly Islands almost as many more as had been already explored by Captain Cook.

I procured, at China, an extract from this Spanish pilot's journal, who left Manilla in 1781, charged with a commission for America, whither he purposed going by the southern hemisphere, by nearly following the track of M. de Surville, and endeavouring to reach the high latitudes, where he reasonably expected to meet with westerly winds. This navigator was not acquainted with the new methods of determining the longitude, nor had he read any of the accounts of modern voyages: he steered by Bellin's old French maps, and made amends, by the greatest accuracy in his reckoning, and in taking bearings, for the imperfections of his method, instruments, and charts. He coasted, like M. de Surville, along New Ireland, saw several small islands which De Bougainville, Carteret, and Surville, had already noticed: discovered

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three or four new ones, and, thinking himself near Solomon's Islands, first fell in with, northward of Vavao, an island which he called *Margoura*, because it afforded him none of the refreshments he began to be in want of. He had not an opportunity of seeing to east of it a second island, of which we got a complete view, that can only be seen three or four leagues, on account of its being very low. At length he arrived at Vavao, where he anchored in a commodious port, and took in water, and a considerable quantity of provisions. The particulars of his account were so true, that it was impossible not to recognize the Friendly Islands, and equally so to mistake the portrait of Poulaho, who, being the principal Chief of all the islands, dwells indifferently in several, but seems to make Vavao his particular place of residence. I shall not enter into any other details of this voyage, which I only mentioned out of justice to the pilot Maurelle. He had named the groupe of Vavao, the *Islands of Majorca*, after the name of the Viceroy of New Spain, and that of Hapace, the *Islands of Galves*, from the name of the brother of the minister of the Indies; but convinced that it is infinitely preferable to preserve the country names, I thought it best to make use of them in M. Bernizet's plan. This plan has been constructed according to the latitudes and longitudes determined by M. Dagelet, far more exact than those of the Spanish navigator, who placed these islands about six degrees too far west; this error, copied from age to age, and sanctioned by geographers, would have given birth to a new archipelago, whose real existence would have been on the charts alone.

We kept plying on the 27th, to approach the Island of Vavao, from whence the W. N. W. wind kept us at a little distance. Having, during the night, tacked and stretched to the north, for the purpose of extending my view twelve or fifteen leagues beyond the island, I got sight of that of

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Margoura

Margoura of Maurelle, which bore west, and having approached it, saw another very flat island, covered with trees. The island of Margoura is, on the contrary, high, and most probably both of them are inhabited. After we had taken all our bearings, I bore up for that of Vavao, which was only distinguishable from the mast head. It is the most considerable of the archipelago of the Friendly Islands; the others, scattered to the north or west, cannot be compared to this last. Towards noon I was at the mouth of the port, in which Maurelle had anchored; it is formed by small elevated islands, having between them narrow but very deep passages, and completely sheltering vessels from the winds blowing in from the offing. This port, very much superior to that of Tongataboo, would have been a great convenience to pass some days in, but the anchoring-place is within two cables' length of shore, and in this position a long-boat is often necessary to carry out an anchor, in order to get off the coast. I was tempted every instant to renounce the plan I had formed on leaving Maouna, to put into no port before I made Botany Bay, but reason and prudence kept me firm. Being, however, desirous of getting acquainted with the islanders, I brought to near the shore; no canoe, however, came near the frigates, which did not surprise me, and was doubtless owing to the badness of the weather, and threatening appearance of the sky; and as the horizon became every minute more overcast, I, before night, stood to the west, towards the Island of Latté, which I perceived; and which, in clear weather, is high enough to be seen at the distance of twenty leagues. This name of Latté is comprehended, in Capt. Cook's list of the Friendly Islands; and had been assigned to this same island by Maurelle, in his journal, from the information of the islanders of Vavao, by whom he was besides told that it was inhabited; and that ships might anchor there.

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there. Here may be seen of what importance it is, to geography to preserve the country names, for if, like former navigators, or even Maurelle himself, we had been seven or eight degrees wrong in our longitude, we might have supposed, on falling in with this island, that we were at a great distance from the archipelago of the Friendly Islands. The conformity in language, manners, and dress, would not have been sufficient to remove our scruples, because it is well known that all these people have a resemblance, though very far distant from each other; whereas, the identity of name, and slightest description of the form and extent of this island, would be a convincing proof of the identity of the place.

The following night was dreadful; the darkness, which enveloped us, was so thick, that it was impossible to distinguish any thing around us. Thus situated, it would have been very imprudent to continue our course in the midst of so many islands; and I resolved to make short tacks till day break, but it was even more stormy than the night; the barometer had fallen three lines, and if a hurricane could possibly rage with greater violence, it could not be announced by weather of a more threatening appearance. I, notwithstanding, stood on for the Island of Latté, and approached it within two miles; very certain, however, that no canoe would hazard putting to sea. Under this island I was so borne down by a squall, as to be obliged to bear up towards the Islands Kao and Toofoa, which we could not but be near, though imperceptible through the fog. These two islands were first laid down on the plan of Captain Cook, who had entered the channel, two miles in breadth, which separates the one from the other, and had accurately determined their latitude and longitude. It was a matter of great importance, to compare the latter with the longitude given by our time-keepers, I proposed indeed to go near enough to Tongataboo, to

complete the comparifon. M. Dagelet very properly confidered the obfervatory of Tongataboo, the fame as that of Greenwich, fince its pofition was determined by the refult of more than 10,000 fets of obfervations taken in the fpace of four or five months, by the indefatigable Capt. Cook. At five o'clock in the evening, the weather clearing up, brought to view Kao Island, whole form is that of a very high cone, which may be feen, in fine weather, thirty leagues. Toofoa Island, though alfo very high, did not fhew itfelf, but remained concealed in the fog. I paffed the night as the preceding one, ftanding off and on, but under the maintop and forefail only, the wind blowing fo fresh that we could carry no other fail. The next morning was tolerably clear, and at fun-rife we got fight of the Islands of Kao and Toofoa. I came within half a league of Toofoa, and convinced myfelf that it was uninhabited, at leaft in three parts of its circumference, for I was near enough the coaft to diftinguifh the ftones on the beach. This ifland is very mountainous, fteep, and covered with trees to the top. It may be four leagues round. I think that the iflanders of Tongataboo, and the other Friendly Islands, often land there in fine weather, to cut down trees, and very probably build their canoes, for in their flat iflands they want wood, where they have only preferved thofe trees which, like the cocoa-palm, bear fruit for their fubfiftence. In running along this ifland, we faw feveral slides, whereby the trees felled on the brow of the mountains roll down to the fea fide; but there were neither huts nor cleared ground in the woods, nor any thing in fhort which befpoke its being inhabited. In this way, continuing our track towards the two little Islands of Hoonga-tonga and Hoonga-hapaee, we fhut in Kao Ifland with the middle of Toofoa, fo that the firft only feemed the fummit of the fecond, and its bearing, in this pofition, was N. 27° E. Kao
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island is about three times the height of the other, and resembles the mouth of a volcano. It appeared less than two miles in diameter at the base. We observed, likewise, on the north east point of Toofoa on the side of the channel which separates it from Kao, a country absolutely burnt as black as a coal, destitute of trees and every kind of verdure, and which it is more than probable has been ravaged by floods of lava.

In the afternoon we came in sight of the two islands of Hoonga-tonga and Hoonga-hapace. They are included in a chart of the Friendly Islands, inserted in Cook's third voyage; but we do not find laid down a very dangerous ledge of rocks extending two leagues, whose direction is nearly N. by W. and S. by E. Its northern point is five leagues to the north of Hoonga-tonga, forming with the two islands a strait of three leagues in width. We ran along the west side of it for more than a league, and espied its breakers rising mountains high, but in more moderate weather it shews itself less, and is then much more dangerous. The two little islands of Hoonga-tonga and Hoonga-hapace are only large uninhabitable rocks, so high as to be seen fifteen leagues. Their form changed every moment, and any sketch it might have been possible to take, would have only agreed in one particular point; they seemed to me of equal extent, each of them less than half a league in circumference. A channel, one league wide, separates these two islands, which lie E. N. E. and W. S. W. They are situated two leagues to the northward of Tongataboo, but that island being low, it cannot be seen at half that distance. We saw it from the mast-head, the 31st December, at six o'clock in the morning; at first only the tops of the trees, which seemed to grow out of the sea, were seen. In proportion as we advanced, we rose the land, but only two or three toises. We soon got sight of Van-diemian's point and the ridge of breakers without it;

at noon it bore east about two leagues. As the wind was northerly I steered for the southern coast of the island, which is very bold, and may be approached within three musquet shots. The sea broke violently upon all the coast; but the breakers were in shore, and we could perceive the most charming orchards beyond; all the island seemed cultivated, the trees skirted the fields, which were of the most delightful green. It is true we were then in the rainy season, for notwithstanding the magic of this landscape, the most horrible drought, in all probability, prevails during part of the year in so low an island. Not a single hill was to be seen, and the sea itself in the calmest weather has not a more even surface.

The huts of the islanders were not collected in villages, but scattered over the fields like the country houses in our best cultivated plains. Seven or eight canoes were soon launched, and advanced towards our frigates; but these islanders, more husbandmen than sailors, managed them with timidity; they did not dare to approach our ships, though laying to, and the water very smooth; they jumped overboard at eight or ten toises distant, swimming towards us with cocoa nuts in each hand, which they exchanged in the most honest manner, for bits of iron, nails, or little hatchets. Their canoes were similar to those of Navigators' Islands; but none of them had sails, which they possibly could not have managed. The greatest confidence soon took place between us, they came on board, we talked to them about Poulaho, and Féenou, and were like old acquaintances who see one another again, and discourse upon their friends. A young Islander gave us to understand that he was the son of Féenou, and this truth or falsehood was worth many presents to him; he uttered a cry of joy on receiving them, and endeavoured to make us understand by signs, that if we would anchor on the coast we should find provisions in abundance, but that the
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canoes were too small to carry them out to sea. The fact was, the canoes contained neither fowls nor pigs, their cargo consisting of some bananas and cocoa nuts; and as the smallest wave made these ticklish barks over-set, the animals would have been drowned before they could be got on board. The manners of these islanders were noisy, but their countenances had no expression of ferocity; and neither their stature, the proportion of their limbs, nor the presumptive force of their muscles could overawe us, though they even had not known the effect of our arms; their physical strength, without being inferior to ours, seemed to have no advantage over that of our sailors. As to the rest, their language, tattooage, dress, all announced one common origin with that of the inhabitants of the archipelago of the Navigators, and it is evident that the existing difference in the individual proportions of these people only proceeds from the dryness of the soil, and the physical causes, arising from the territory and climate of the archipelagos of the Friendly Islands. Of the hundred and fifty islands which compose this archipelago, the greater number consists but in uninhabited and uninhabitable rocks; and I feel no hesitation in asserting that the Island of Oyolava alone exceeds in population, fertility, and real strength, all these islands put together, where the islanders are obliged to water with the sweat of their brow, the fields which furnish them with their subsistence. It is perhaps to this necessity for agriculture that they are indebted for their progress in civilization, and discovery of some arts which compensate for the want of natural strength, and protect them from the invasion of their neighbours. We have, however, seen no arms among them but *patow-patows*; we bought several of them, which were not one third of the weight of those we procured at Maouna, and which the inhabitants of the Friendly Islands would not have had strength to make use of.

The custom of cutting off the two joints of the

little finger is as general among these people as at Cocoa and Traitors' Islands, while that mark of grief for the loss of a friend or relation is almost unknown in Navigators' Islands. I know that Captain Cook thought that Cocoa and Traitors' Islands made part of the Friendly Islands; he founded his opinion on the report of Poulaho, who knew of the trade Captain Wallis carried on in these two islands, and who even had in his cabinet, before Captain Cook's arrival, some pieces of iron proceeding from the barter of the Dolphin frigate with the inhabitants of Traitors' Island. I thought, on the contrary, that these two islands were comprehended in the ten which had been named to us by the islanders of Maouna, because I found their situation precisely in the point of the compass pointed out by them, and more to the east than was laid down by Captain Wallis; and I thought that they might, with the island of the Handsome Nation of Quiros, make the group complete of the finest and largest archipelago of the South Sea. I agree, however, that the natives of the islands of Cocoa and Traitors bear a greater resemblance, both in stature and external appearance, to the inhabitants of the Friendly Islands, than to those of Navigators' Islands, which they are nearly of an equal distance from. After having thus explained the reasons for my opinion, I feel little reluctance in adopting, on all occasions, that of Captain Cook, who has made so long an abode in the different islands of the South Sea.

All our intercourse with the inhabitants of Tongataboo consisted in a simple visit, and seldom is it made at such a distance; from them we received only the same refreshments as they give to neighbours in the country; but M. Dagelet had an opportunity of verifying the rate of going of our time-keepers. The great number of sets of observations made, as I before stated, by Captain Cook, at Tongataboo, left no doubt as to the accuracy of position of the Resolution's

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tion's observatory, and he thought to make it, in some sort, a first meridian, by ascertaining the relative positions with respect to it, of the whole archipelago of the Friendly Islands, and even some others which he had visited in the southern hemisphere. The result of his observations, obtained by a great number of distances between the sun and moon, differed at least seven minutes from that of Captain Cook : thus M. Dagelet, while admitting the longitudes of that celebrated navigator, likewise pursued his own, and he was convinced that comparisons on places whose situation was already determined, might greatly increase the confidence given to time-pieces, but that they were not necessary for their verification ; a set of lunar observations, taken in favourable circumstances, leaving nothing in that respect to be desired. From the conformity of our determinations of latitude and longitude, it may be concluded, that supposing we had been entirely unacquainted with the voyages of Captain Cook, the Navigators' Archipelago, and the group of the islands of Vavao, would nevertheless have had the same geographical positions on our charts within five or six minutes.

The 1st of January, 1788, on the approach of night, having lost every hope of obtaining even sufficient provisions for our consumption while thus plying in the offing, I resolved to bear away to the W. S. W. and run for Botany Bay, by taking a course which hitherto had not been pursued by any other navigator. It did not come within my plan to reconnoitre Pyl-tart Island, discovered by Tasman, and the position of which Capt. Cook had determined ; but the wind having shifted from N. to W. S. W. obliged me to make a stretch to the south, and in the morning of the second I perceived that island, whose greatest width is about a quarter of a league. It is very steep, with some trees only on the N. E. side, and can serve for a retreat to sea fowl alone.

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This small island, or rather rock, bore west from us at half past ten in the morning. Its latitude by observation taken at noon by M. Dagelet, was found to be $22^{\circ} 22'$, that is to say $4'$ further north than the latitude assigned by Captain Cook, who having determined it by distant bearings, was liable to error.

The calms gave us too many opportunities of ascertaining and correcting our observations. For three days we remained in sight of this rock. The sun, which was in the zenith, kept up these calms, a hundred times more tedious to sailors than contrary winds. We waited with the most lively impatience for the south easterly breezes, which we expected to meet with in these seas to conduct us to New Holland. The winds had blown constantly from the west since the 17th December, and whether violent or not, their only variation was from north-west to south-west. Hence it appears that the trade winds are very unsettled in these latitudes: they, however, blew from the east the 6th January, and shifting to N. E., the weather became very overcast, and the sea exceeding high, and so continued with much rain, and a horizon of trifling extent to the 8th, when we had steady but very strong breezes from N. E. to S. E., the weather dry, and sea extremely rough. As we had crossed the latitude of all these islands, the winds resumed their course, which had been absolutely interrupted from the line to the 26th degree south; the temperature was also greatly changed, and the thermometer fell 6° , either from our having gotten beyond the sun, or as is equally probable, the strong easterly breezes, and a whitish sky had checked its influence; for it was but four degrees from our zenith, and its rays had very little obliquity. On the 13th, we came in sight of Norfolk Island*, and

* Of which, see the account, in the voyages and discoveries of governors Philip and Hunter, in New South Wales, and the Southern Ocean, printed for Stockdale.

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of the two islets lying off its southern point. The sea was, and had been for a long time so high, that my hope of shelter on the north-east coast was but faint, although the wind was at this moment southerly; I however, on coming nearer, found smoother water, and I decided upon letting go the anchor, at a mile from the shore, in 24 fathoms, and a hard sandy bottom, intermixed with very little coral. I had no other object in view, than that of sending our naturalists and botanists to get information respecting the soil, and productions of this island, they having, since our leaving Kamtschatka, had but very few opportunities of increasing their journals. We saw the sea break with fury round the island, but I flattered myself that our boats would shelter themselves, in some degree, behind the large rocks that border the coast. As we had, however, learnt from experience never to lay prudence aside, I charged M. de Clonard, Post Captain, second officer in the expedition, with the command of four small boats from the two frigates, and enjoined him not to risk a landing under any pretext whatever, if our Biscay yawls ran the least danger of being overfet by the surf. His punctuality and prudence, left me nothing to fear; and this officer, whom I intended to appoint to the command of the Astrolabe so soon as we should arrive at Botany Bay, deserved my entire confidence. Our frigates were anchored abreast of two points, situated at the northern extremity of the N. E. coast of the island, opposite the place where we supposed Captain Cook to have disembarked. Our boats made for this kind of inlet, but they found the surf break so violently over the great rocks as to render the approach to it inaccessible. They coasted within half a musket shot of the beach, steering towards the south-east, and thus rowed half a league without finding a place where there was a possibility of landing. They saw the island surrounded by a wall, formed from the lava which

which had flowed down from the top of the mountain, and which having cooled in its descent, had left in many places a kind of roof, projecting several feet over the coast of the island. Though it had been possible to land, the interior could not have been penetrated, without stemming for fifteen or twenty toises the rapid course of some torrents that had formed ravines. Beyond these natural barriers, the island was covered with pines, and carpeted by the most beautiful verdure; we might probably have met with some culinary plants, and this hope greatly increased our desire for visiting a shore, where Captain Cook had landed with the utmost facility. It is true, he met with fine weather in these seas that continued several days, while we had constantly navigated in such a heavy sea, that for eight days, our ports and windows had never been once opened. From the deck I followed the motion of the boat with my glass, and seeing that night was coming on, and they had not found a commodious landing place, I made the signal for them to return, and soon after gave orders for weighing. I might possibly have lost much time in waiting for a more favourable moment, and the survey of this island was not of sufficient consequence for such a sacrifice. As I was preparing to sail, a signal from the *Astrolabe*, indicating her to be on fire, threw me into the utmost consternation. I immediately ordered out a boat to her assistance, but it had hardly got half way, before a second signal informed me of its being extinguished, and soon after, M. de Monti told me through his speaking trumpet, that a box of acids, and other chemical liquids belonging to Father Receveur, deposited under the quarter deck, had taken fire of itself, and spread so thick a smoke below, that it was very difficult to find out what it proceeded from: they at length found means to throw this box into the sea, and the accident was attended with

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no further consequences. Probably some bottle of acid having bursted in the box, was the cause of the fire which communicated to the bottles of the spirits of wine, either broken or carelessly corked. I gave myself credit for having ordered from the first setting out on the voyage, that a similar box, belonging to the Abbé Monges, should be placed in the open air on the fore-castle of my frigate, where there was nothing to fear from fire.

The elevation of Norfolk Island, though very steep, hardly exceeds seventy or eighty toises from the level of the sea: the pines which cover it, are probably of the same species as those of New Caledonia or New Zealand. Captain Cook says, that he found there several cabbage palm trees, and the desire of procuring some, was not one of the least inducements we had for putting in there. It is probable, that the palms bearing these cabbages are very little, for we could perceive no tree of that sort. This island, not being inhabited *, is covered with sea-fowl, particularly tropic birds, all of which have their long red feathers: there were also several noddies and gulls, but not a single man of war bird. A sand-bank, on which there are 20 or 30 fathoms water, extends three or four leagues N. and E. of this island, and, perhaps, all round it, but we did not sound to the west of it. While we were at anchor we caught some red fish on the bank, like what are called *capitaine*, or *surde*, at the Isle of France, which afforded us an excellent meal. At eight o'clock in the evening we were under sail. I stood W. N. W., and bore up, by degrees, to S. W. by W. under easy sail, continuing to sound on this bank, where we might possibly meet with some shoal; but the bottom was, on the contrary, very even, and the water deepened, foot by foot, as we

* In Philip's and Hunter's Voyages, is a particular account of the English colony since settled there; with a large chart and plan of the island and its soundings.

got further from the island. At eleven o'clock in the evening, a line of 60 fathoms did not reach the bottom, we were then ten miles W. N. W. from the most northerly points of Norfolk Island. The winds remained steady at E. S. E., with rather foggy squalls, but, in the intervals, the weather was very clear. At day-break I crowded sail for Botany Bay, which was not more than 300 leagues off. After sun-set, on the 14th, I made the signal for bringing to, and sounding with a line of 200 fathoms. The flat bank of Norfolk Island had made me think that bottom might be found all the way to New Holland: but this conjecture was false, and we stood on our course with one error less, for I had strongly adhered to this opinion. The winds from E. S. E. to N. E. were fixed till we came in sight of New Holland; we made much way by day, and very little by night, because we had been preceded by no navigator in the track we were pursuing. The 17th, in $31^{\circ} 28' S.$ lat., and $159^{\circ} 15' E.$ long., we were surrounded by an innumerable quantity of gulls, which led us to believe we had passed near some island or rock; and many were ready for the discovery of a new land before our arrival at Botany Bay, which we were, however, but 180 leagues from. These birds followed us till within 80 leagues of New Holland, and it is very probable, that we may have left behind us some islet or rock, which these birds make their asylum, for they are not near so numerous near inhabited land. From the time we left Norfolk Island till in sight of Botany Bay, we, every evening, sounded with a line of 200 fathoms, and only began to strike ground eight leagues from the coast, in 90 fathoms. We got sight of it the 23d of January. It is not very high, being hardly perceptible for more than twelve leagues. The winds then became very variable, and we fell in with, like Captain Cook, currents that carried us, each day, $15' S.$ of our reckoning; so that we passed the 24th in working to windward,

ward, in sight of Botany Bay, without being able to weather Point Solander, which bore north, one league distant. The wind blew violently from this quarter, and our ships sailed too badly to overcome, at the same time, the force of the winds and currents. But this day we had a sight entirely new to us since our departure from Manilla; which was the English fleet, whose pendants and colours we could distinguish, riding at anchor in Botany Bay.

Europeans, at that distance from home, are all countrymen; and we felt the greatest impatience to get to an anchor. But the next day was so hazy, that it was impossible for us to distinguish land, and we did not reach our anchorage before the 26th at nine o'clock in the morning. I let go the anchor a mile from the north shore, in seven fathoms water, over a bottom of fine grey sand, abreast of the second bay. The moment I appeared in the mouth of the channel, an English lieutenant and midshipman were sent on board my ship, by Captain Hunter, commanding the English frigate the *Sirius*. They offered me, on his part, all the services in his power; adding, however, that being on the point of getting under way to run northward, circumstances would not permit him to give us provisions, ammunition, nor sails; so that their offers of service were reduced to wishes for the final success of our voyage. I sent an officer to return my thanks to Captain Hunter, who was already a-peak, with his topsails hoisted, and to tell him that my wants were confined to wood and water, which we should find plenty of in the bay; and that I knew that ships, destined for the establishment of a colony, at so great a distance from Europe, could afford no succour to navigators. We learnt from the lieutenant that the English fleet was commanded by Commodore Philip, who had got under way, the evening before, in the *Spy* sloop, to look for a place to the north more convenient

nient for his establishment. The English lieutenant seemed to keep Commodore Philip's plan very secret, and we did not permit any question to be put to him on this subject; but we could not doubt but that the projected establishment must be very near Botany Bay, several boats and launches being on their way to go thither; and the passage must be short indeed to judge it useless to put them on board the ships. The sailors of the English boat, more indiscreet than their officer, soon informed our's that they were only going to Port Jackson, sixteen miles north of Cape Banks, where Commodore Philip had himself discovered a very good harbour, which ran ten miles towards the S. W.: the ships could ride at anchor there within pistol-shot of shore, in a sea as smooth as the water of a basin. We had, in the sequel, too many opportunities of hearing news of the English establishment at Botany Bay, the runaways from which gave us a great deal of trouble and uneasiness *.

The following Extract is taken from Governor Philip's interesting Voyage to Botany Bay.

“ During the stay of M. de la Pérouse in Botany Bay, Father le Receveur, who had come out in the Astrolabe as a naturalist, died. His death

* Here ends the journal of La Pérouse. I shall not repeat what I have said in the Preliminary Discourse, on the fate of this illustrious but unfortunate officer. I think I have completely refuted the absurd assertions respecting the probability of his existence. I refer the reader to it, and request him to read in this volume the last letter he wrote from Botany Bay to the Minister of Marine. He therein relates what track he means to pursue before his arrival at the Isle of France; and from the simple combination it presents to navigators, it is not possible to indulge the least hope of his return.
— French Editor.

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ROUND THE WORLD.

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" was occasioned by wounds which he received in
" the unfortunate rencounter at the Navigators'
" Islands. A slight monument was erected to his
" memory, with the following inscription :

Hic jacet Le RECEVEUR,
E. F. F. Minimis Galliae Sacerdos,
Physicus in circumnavigatione
Mundi,
Duce de la PÉROUSE,
Ob. 17 Feb. 1788.

" The monument being soon after destroyed by the
" natives, Governor Philip caused the inscription to
" be engraved on copper, and affixed to a neigh-
" bouring tree. M. de la Pérouse had paid a similar
" tribute of respect to the memory of Captain Clerke,
" at the harbour of St. Peter and St. Paul, in Kamt-
" schatka."

VOL. II.

Q

EXTRACT

EXTRACT FROM AN ACCOUNT OF AN
 EXCURSION TO THE PEAK OF TENERIFFE,
*Performed by Messrs. De LAMANON and MONGÈS on
 the 24th of August, 1785, together with an Account
 of some Chemical Experiments made at the Summit of
 that Mountain, and a Description of new Varieties of
 volcanic Schorls.*

THE crater of the peak is a perfect solfatara or laboratory of sulphur, greatly resembling those of Italy. Its diameter is about 50 toises by 40, rising with a steep and rapid ascent from west to east.

On the edges of the crater, and particularly towards the lowest part, are several apertures or vents, exhaling watery and sulphuric acid vapours, the heat of which raised the thermometer from 9° to 134° . The interior of the crater is covered with yellow, red and white clay, and fragments of lava partly decomposed. Under these were found very beautiful crystals of sulphur, forming rhomboidal octaedra, some of which were an inch thick. I believe they are the finest crystals of sulphur hitherto discovered.

The steam exhaled from the apertures was pure water, and not at all acid, as I proved not only by its taste, but by several experiments.

The elevation of the peak above the level of the sea being near 1900 toises, I made some chemical experiments in order to compare the phenomena at so great a height with those which occur in our laboratories. I here give only the results: to detail all the minutiae would be tedious.

The evaporation of liquids, and the cold they produced, were very considerable. A minute was sufficient to volatilise a pretty large quantity of ether. The action of the acids on metals, earths, and alkalis, was slow, and the bubbles that escaped during the effervescence

effervescence were much larger than ordinary. The production of vitriols afforded a singular phenomena. That of iron instantly assumed a fine violet colour, and that of copper precipitated with a very vivid blue.

Having next examined the humidity of the air by means of an hygrometer, of pure alkali and vitriolic acid, I concluded that out of the current of the aqueous vapours the air is very dry, for in three hours the vitriolic acid had scarcely undergone any change either in colour or weight. The fixed alkali remained dry except at the edges of the vessel, where it was rather moist, and the hygrometer was at 64° , as near as the violence of the wind would permit us to judge.

In contradiction to all the wonders hitherto related, the smell and strength of the liquors appeared not to have lost any thing at this elevation, and the volatile alkali, ether, and alcohol retained the same strength. Only the fuming liquor of Boyle lost a considerable portion of its energy: its evaporation however was not the less rapid, and in thirty seconds a quantity I had poured into an open vessel was completely volatilised. Nothing remained but sulphur, which reddened the edges and bottom. On pouring sulphuric acid into this liquor, it exploded with great violence, and the vapours arising from it had a very sensible degree of heat.

I endeavoured to generate volatile alkali by decomposing sal ammoniac with fixed alkali, but its production was slow and scarcely perceivable; whereas, on a level with the sea, its formation with similar quantities seemed to proceed more rapidly, and in greater abundance.

Desiring to ascertain the nature of the vapours exhaled from the crater, and whether they contained inflammable air, fixed air, or marine acid, I made the following experiments. I exposed a nitrous solution of silver in a vessel on the edge of one of the vents, where it remained above an hour in the midst of the vapours continually arising, without any sensible al-

teration, and thus demonstrated that no marine acid was exhaled. I then poured a few drops of marine acid upon it, when the precipitation of luna cornea took place immediately; but in lieu of being white as usual, it was of a fine dark violet, which soon changed to grey, under the form of small flaky chrystals, visible to the naked eye, but much more clearly perceived by means of a glass, in which manner M. Sage examined them (*vid. min. docim.*) This change of colour, according to some experiments I have made on the precipitation of luna cornea in inflammable air, must, in my opinion, be attributed to a combination with a vapour of that kind. Lime-water exposed during three hours on the edge of the crater, and in the neighbourhood of a vent, was not covered with any pellicle. Scarcely could we perceive a few filaments; which I think proves not only that no fixed air exhaled from the crater, but also that the atmospheric air resting upon it contains but very little, and that the inflammable vapours and sulphuric acid gas alone are considerable, or indeed perceivable.

The atmospheric electricity was pretty considerable; the electrometer of M. Saussure held in the hand about five feet from the ground pointed to 3° ; whereas at the surface it was at $1\frac{1}{2}$. This electricity was positive.

The violence of the wind prevented my making on the crater itself the experiment of boiling water. But having again descended to the frozen fountain, it continued boiling, and the thermometer, when plunged in it, pointed to 71° of Réaumur. The mercury of the barometer was then at 19 inches and one line.

I found new varieties of volcanic schorls, and among others No. 1, a triple lozenge belonging to the class of octaëdral inequilateral prisms.

No. 2, black schorl in octaëdral prisms of unequal sides, terminating in opposite triedral summits, the

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the plans of which are two great irregular eptaedra, and a small scalene triangle, produced by the truncation of the upper angle.

No. 3 is a compressed hexaëdral prism, having the two larger sides opposite; terminated at one end by an obtuse tetraëdral pyramid, with trapezoidal plans, and on the other by an hexaëdral pyramid, composed of six trapezoidal plans, two of which are very small bevellings, and formed by the edges of the two upper sides of the broad hexagon of the prism.

No. 4 terminated at one end like the top of the last, and at the other by a diëdral pyramid, of which all the edges are bevelled off.

No. 5 terminates at one end by a tetraëdral summit, and at the other by an eptædron, composed of an irregular pentagon in the middle, five trapezoides on the sides, and a sixth on one of the angles.

No. 6 terminates in a pentaëdral summit, composed of four pentagons and a rhomb in the middle, which is a truncated angle formed by the union of the four trapezoids; and on the other by a pentaëdral summit, which differs from the first only in a triangular truncation on the edge of the two trapezoids.

No. 7, black schorl with an hexaëdral prism, terminating at one end in an eptædral summit, composed of two irregular hexagons, two irregular pentagons, and three trapezoids, formed by the two diedral faces, truncated on six sides, and on the middle edge: at the other by a tetraëdral summit, whose truncations form, 1, two large trapezoids and a rhomboides, which is no other than the truncation of one edge of a trapezoid; 2°, two small regular trapezoids, and between the great and small trapezoids, three truncatures, one hexagonal, the second pentagonal, and the third a scalene. The second is the truncature of the angle of the summit, which would be a rhomb without the hexagonal truncature, which gives it an additional side.

EULOGY OF LAMANON,

BY M. BONCE,

Read at the Public Sitting of the Free Society of Sciences, Letters, and Arts, in the Louvre, at Paris, 9th Vendémiaire, 6th Year.

WHEN a great man terminates a long and brilliant career, made illustrious by acts of heroism, or the sublime productions of genius, the honours we bestow on his memory should be considered rather as a tribute of gratitude than the mere expression of grief. He has performed his allotted work; the good he has done remains, the knowledge he has promulgated lives and increases, and a protracted existence, at an age when the decay of his organs puts a period to the brilliant conceptions of genius, would neither add to his own glory, nor the happiness of his species.

But when a young man of exalted virtues, and adorned with mature, though early talents, falls a victim to his too eager pursuit of knowledge, and is snatched suddenly from the world, all mankind must feel the deepest regret that the expectation of his future services must now terminate with the grave, and his hopes of adding to the improvement of science be destroyed at once by the cruel stroke of death.

Robert Paul Lamanon, of the Academy of Turin, corresponding member of the Academy of Sciences at Paris, and member of the Museum of that metropolis, was born at Salon, in Provence, in 1752, of a family ancient and well esteemed. I shall not enter into the details of his youth. To men of ordinary capacity a good education is indispensable: but with men of genius a new education is and must be the offspring of their own creation. Being a
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younger son, and therefore condemned to the inactive leisure of the church, Lamanon finished his classical studies at Paris. But to science, and particularly the sublime study which includes a universal knowledge of all the productions of nature, he already felt that predilection and propensity which is the surest pledge of future success. Being soon emancipated from every controul by the death of his father and elder brother, he hastened to quit a profession for which he felt no natural aptitude or inclination.

A prelate, then in the highest favour with the court, hearing that Lamanon was quitting the church, offered him a considerable sum of money to resign his canonicate in favour of one of his protégés. "The chapter of Arles," replied the youthful collegiate, "did not sell me my benefice; and as I received it, I am determined to restore it."

Nature had implanted in him a sense of justice, which the prejudices of his birth never weakened; and determining, by an act of peculiar generosity, to renounce the barbarous advantage conferred on him by the law, he divided his patrimony with his brothers and sisters in equal portions.

Liberated from the restraints of his profession, Lamanon devoted himself to his studies with an ardour by no means common. Desirous to withdraw the veil which conceals the secrets of nature from our eyes, yet persuaded that the most elevated genius begets only erroneous systems in the silence of the closet, and convinced that to comprehend the sublime productions of nature, we must see and observe a great deal, and catch her as it were in the act and commencement of her operations: our youthful sage, glowing with these ideas, travelled over Provence, Dauphiny, and Switzerland, and climbed the arduous heights of the Alps and Pyrenees. At sight of these vast laboratories of nature, his genius caught

fire, and blazed out instantaneously. Exploring now the summits of mountains, now the depths of caverns, weighing the different airs, and analysing bodies, he imagines himself raised to a knowledge of the secrets of creation, and conceives a new system of the universe.

On his return home he devoted himself with new ardour to the study of meteorology, mineralogy, physics, and every branch of natural history.

Desirous to derive assistance from the conversation of scientific men at the capital, Lamanon removed to Paris*, and it was at the same period that he undertook a voyage to England. Though sea-sick during a most tempestuous passage, and in danger each moment of being swallowed up by the waves, he lashed himself to the main-mast, there to contemplate at leisure a scene at once sublime and terrible. The bursts of thunder, the whistling of the winds, the blaze of the forked lightning, the waves that in rapid succession overwhelmed him, so dreadful to men of ordinary talents, raised in his soul a species of enthusiastic intoxication, and he has often declared to me that this was the finest day he had ever beheld.

Convinced that the friendship of a great man elevates the soul, excites emulation, and becomes an additional stimulus even in those to whom study is pleasure, and the endearments of affection necessary, Lamanon endeavoured to qualify himself for that of

* The inhabitants of the commune of Salon having been defeated in a law suit against their lord, unanimously elected Lamanon, whose integrity and knowledge were well known, to solicit before the council the repeal of the iniquitous decree which had been surreptitiously obtained by interest. The reply of our youthful sage on this occasion is an additional proof of his uncommon distinguishedness. "As I intend," said he, "to go to Paris on my private affairs, I cannot accept the 24 livres per day you offer me: I shall take only the twelfth part of that sum to defray the extraordinary expences that may attend my journeys to Versailles." In this affair he obtained complete success.

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Condorcet, whose talents and misfortunes have immortalized him, though pursued by the unforgiving malice of a lawless faction, at enmity with every thing but disorder, because he laid the basis of liberty on the ruins of anarchy. That academician, who already discovered what Lamanon might one day become, received him with distinction, and at length granted him his most intimate friendship.

During three successive years which he passed at Paris, he constantly attended to the duties of the learned societies, which admitted him a member; and was at that time jointly with Court de Gebelin, and some other learned men and artists, one of the founders of the Museum, the majority of whose members are now united with the Free Society of Sciences, Letters, and Arts of Paris: among various papers which he read at the sittings of these societies, many of which are printed, I shall mention that on Adam de Crapone, one of the most skilful hydraulic engineers that ever existed; an artist to whom we are indebted for several canals for agricultural purposes, which fertilize our southern departments;—a memorial on the *hernia gutturis* of the Savoyard mountaineers; a paper full of profound observations, and judicious reflections;—another piece on the theory of the winds, (particularly the *mistral*, which devastates the southern countries), one of the best treatises we have on that subject. He produced also a very luminous essay on the variation of the beds of rivers, particularly of the Rhone; and lastly on the enormous skeleton of a fish of the cetaceous kind, found at Paris in digging the foundation of a house in the *rue Dauphine*.

Having formed an intention of revisiting Switzerland and Italy, Lamanon made a tour to Turin, and there became acquainted with the learned men of that capital. The discovery of Montgolfier, that brilliant

brilliant novelty which may be considered as one of the phenomena which precede great events, then drew the attention of all Europe. Our youthful sage was desirous of making some experiments of that nature. He exhibited an aerostat at Turin. But not perceiving in this discovery, at first so seducing, an object of public utility, not foreseeing that it would one day give success to the standard of France in the field of battle at Fleurus, and obtain the palm of victory for his countrymen, he resumed his favourite occupations. Departing therefore from Piedmont, he explored the rest of Italy, returned through Switzerland, visited the Alps, climbed the summit of Mount-Blanc, and hastened home to Provence, loaded with the rich spoils of the countries he had traversed, to digest the interesting materials he had collected.

The following is an example of the accuracy of his observations.—Convinced that the plains of *La Crau*, which is divided by the river Durance, had once formed a lake, he was desirous to ascertain that fact with physical certainty. He therefore collected one of each sort of pebble in that vast plain, and counted nineteen different varieties. Then tracing the river to its source, near the frontiers of Savoy, he observed that above every stream which branched from it, and discharged itself into the Durance, the number of pebbles he met with diminished. He then ascended the course of each of these little rivers, and found on their banks the principle of the pebbles with which the plain of Crau is strewn. Thus he obtained an incontrovertable proof that this plain had once been a lake formed by the Durance and the waters of the rivers that unite with it. If all men of learning pursued their researches with equal precision, hypotheses, rather brilliant than solid, would not find so many admirers. The charms of imagination, and the orna-

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scriptible rights of truth and nature*.

At the period when he was about to publish his great work on the Theory of the Earth, the Govern-
ment conceived the vast design of compleating the
discoveries of Captain Cook; and ordered the Aca-
demy to choose out a number of men qualified to
correct our notions of the southern hemisphere, to
perfect its hydrography, and advance the science of
natural history. Condorcet knew no man so well
qualified for this last department as Lamanon, and
wrote him an invitation to share the perils and fa-
tigue of this glorious enterprise. Our youthful aca-
demician accepted with transport a proposal which
crowned all his wishes, flew to Paris, presented him-
self to the minister, and, refusing the salary offered
him, took leave of his friends, and departed for Brest.

The expedition sailed in August 1785 under the
command of an experienced mariner, whose zeal for
the advancement of science, and attachment to his
native country, equalled his courage and intelligence,
which had already deservedly procured him the con-
fidence of the people. The learned of every country
waited with anxiety the useful discoveries which the
zeal and talents of the persons employed gave reason
to expect. The former part of their voyage was
very successful. After landing in a variety of places,
and making a multitude of observations, the two
ships arrived at the Island of *Mouana*, one of those in
the *Archipelago of Navigators*. The eager Lama-
non, impatient to establish the truth of the accounts
given of that country, landed, together with M. de

* Lamanon, after a confinement of two months in consequence
of a fever, having learned that the phenomenon of a subterraneous
noise had been observed near Maleherbes, sixteen leagues from
Paris, escaped the vigilance of his friends, flew to the spot, and three
days after returned with thirty pounds weight of fossils. In that
time he had travelled thirty-two leagues on foot, and recovered of
his fever, which never attacked him since.

Langle,

Langle, the second in command of the expedition. At the moment of their re-embarkation, the islanders, seduced by the expectation of finding immense riches in their vessels, as they conjectured from the presents they had just received, endeavoured to prevent their getting off, and attacked our countrymen. The latter were compelled to defend themselves, and Lamanon, De Langle, and ten of both the crews fell victims to the fury of the cannibals.

Thus fell Lamanon, whose generous devotion of his labours to the service of the community gave him the most sacred claims on the public gratitude. He was the only one of this celebrated but unfortunate expedition who received no salary from the national munificence, and he fell a victim to his ardour for the sciences, under a danger peculiar to himself, and participated by none of the learned men who embarked with him.

Lamanon was formed to extend the sphere of the sciences. The depth of his penetration, the energy of his character, the sagacity of his judgment, combined with that lively curiosity which induces us to acquire information, and to discover the first principles of things, must have led to the most valuable discoveries. His person was tall, and to great vivacity of countenance were united a prodigious strength and inconceivable activity of body. In a word, nature had formed him with the care she seems to bestow on the chosen few whom she destines for great undertakings. His style was nervous, and frequently adorned with poetry, but always enriched with imagery peculiar to himself. Sentiment beamed through the energy of his attractive language; and if he did not possess the refined diction which dazzles and seduces the reader, he was in the highest degree master of that logical force of argument by which we are at once convinced and astonished.

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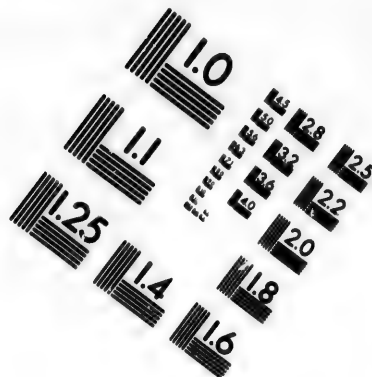
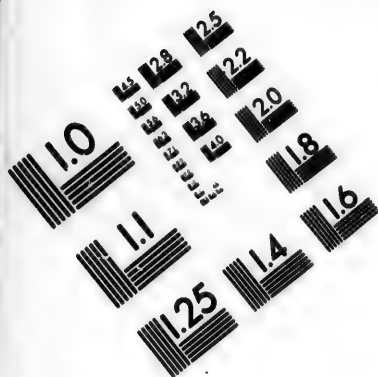
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tions, and the smallness of his fortune, his beneficence, that characteristic of a virtuous and feeling mind, had assumed in him the same ascendancy which the love of pleasure holds in other men, and this he found the means as well as the time to indulge. Nor would he have been insensible to the charms of society had his ardour for study left him time to enjoy them. Uncommonly ingenuous in his manners, he replied to a lady who asked him whether he had ever formed an intimate connection with the fair sex, that he had always desired it, but never yet could spare the time.

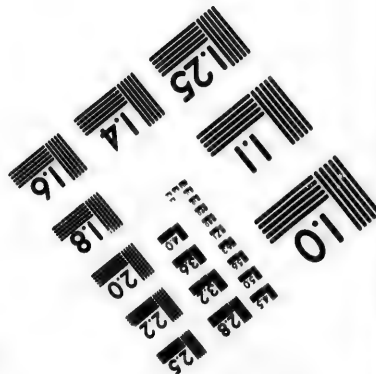
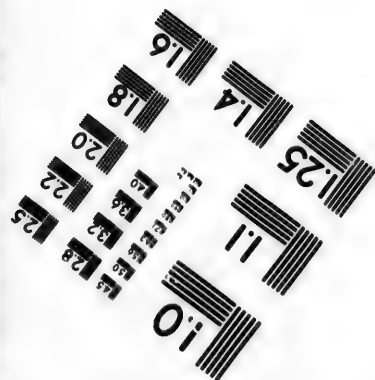
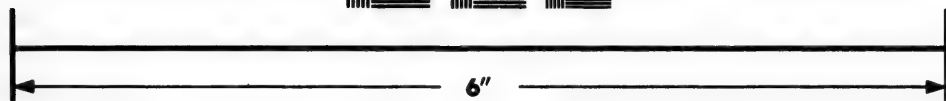
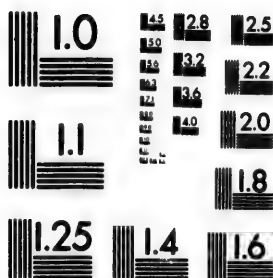
At the period of his engaging in the voyage round the world, that innate sentiment, that strong passion for independence, which formed the basis of his character, induced him to refuse the salary granted to all the other academicians. "Should I not feel happy on board," said he, "should my taste or my curiosity make me desirous of quitting the expedition, I will not suffer any power on earth to have the right of controlling me." But death belied the fond hope of friendship, and has cut the threat of his life* in a distant and barbarous country, and our grief is even robbed of the soothing satisfaction of bathing his ashes with our tears, and strewing his tomb with flowers.

* I knew Lamanon in my early youth at the house of Court de Gebelin, and in some literary societies. His modesty, his simplicity, his scrupulous integrity, had procured him friends who were strongly attached to him; Mongès, jun. the mineralogist, who also perished in this fatal expedition; La Métherie, author of the *Theory of the Earth*, and editor of the *Journal de Physique*; M. Ponce, a distinguished artist as an engraver, and author of this Eulogy; and lastly, Lewis Rose, an ardent naturalist, now in North America. The latter has, since the death of his friend, constantly preserved his bust, which he has placed in a conspicuous part of his cabinet, and covered with funeral crape.—*Note by Millin.*





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DISSERTATION

On the inhabitants of EASTER ISLAND and of MOWEE, by M. ROLLIN, Doctor of Physic, Surgeon in Ordinary of the Navy, and of the BOUSSOLE Frigate, commanded by M. de la PÉROUSE, in a Voyage round the World.

OUR stay in these islands having scarcely permitted me to pass a few hours on shore, I was unable to conduct my researches with the accuracy, or carry them to the extent I wished, in order to give the Medical Society all the satisfaction they required on the subject. I shall therefore confine myself to pointing out the errors I thought I discovered in the accounts of other travellers, and endeavour to convey only a succinct description of the inhabitants, and the diseases by which they seem most generally affected.

On the 9th April, 1786, we cast anchor off Easter Island, which is situated in $27^{\circ} 9' S.$ lat. $111^{\circ} 55' 30'' W.$ long.

The aspect of Easter Island is not so barren and disgusting as navigators have told us. It is indeed almost destitute of wood, but the hills and valleys exhibit, in the eyes of seamen at least, a most agreeable verdure. The size and goodness of their potatoes, yams, sugar canes, &c. are proofs of great fertility and strong vegetation.

The descriptions of the inhabitants appear equally remote from truth. We neither found there the giants described by Roggwein, nor the meagre figures represented by a modern traveller, as languishing for want of wood, and possessing a general character of penury, which has no real existence. Far from meeting with men who disgusted the spectator by their miserable appearance, and a few women, left by a supposed revolution in that part of the world,

which

which buried the inhabitants in its ruins—on the contrary, I observed a pretty numerous tribe, adorned with more grace and beauty than all those I have since had occasion to visit; and enjoying a soil that easily supplied them with good provisions in an abundance, more than sufficient for their consumption, though fresh water was very scarce, and of a bad quality.

These islanders are stout, and of an agreeable person and countenance. Their height is about five feet four inches French, and they are very well proportioned. Except their colour, the character of their face differed in no respect from that of Europeans. They are not very hairy, and have but little beard, but have all a considerable quantity on the pubis and in the arm-pits. Their complexion is swarthy, and their hair black, though in some it is fair. They appeared, in general, to enjoy good health, which they preserve even to old age. They not only paint and tattoo themselves, but also pierce their ears. They encrease the opening of the latter, by inserting a leaf of the sugar-cane, rolled into a spiral form, so much that the lobe of the ear hung, as it were, upon their shoulders. This is used by the men alone, and seems to be a mark of distinguished beauty, which they are studious to acquire.

The women also not only exhibit a regular shape, but limbs well polished and gracefully moulded. Their face is of an agreeable oval, their features sweet and delicate, and they only want the addition of a fair complexion to claim the praise of beauty, according to our European ideas. They are sufficiently stout, have beautiful hair, and an engaging manner, calculated to inspire those sentiments which they feel themselves, without endeavouring to conceal them.

Notwithstanding all these interesting qualities, I did not perceive the least appearance of jealousy in the men; who on the contrary, endeavoured to make a traffick

traffic of their favours. The latter are circumcised, and appear to live in perfect anarchy. None of our company could distinguish any Chief among them. Both men and women are almost naked, wearing only a skirt about their middle, or sometimes a piece of cloth, which they wrap round their shoulders and hips, and which extends half way down their thighs.

I know not whether they have any idea of property among themselves, but their conduct towards us proves how little they respect that of strangers. They took so great a liking to our hats, that in a few hours they stripped us of them all, and then made us the subject of their raillery. We can only compare them to school-boys, who place all their enjoyment, and employ all their cunning, in playing every kind of frolic on the peasantry.

These islanders are not destitute of industry. We even remarked that their houses are very roomy and perfectly well built in their kind. They are formed of reeds, supported by a frame of rafters, in the manner of an arbour, being fifty feet long by ten or twelve broad, and the same in height in the loftiest part. There are several entrances in the sides, whose greatest diameter does not exceed three feet. The inside presents nothing very remarkable. We only saw some mats, which they stretched on the ground to lie on, and several small pieces of furniture, for their use. Their clothes are made of the paper mulberry, but their manufacture is very inconsiderable; because though they cultivate that tree, it does not grow in great plenty. They also make hats and baskets of rushes, and small figures in wood, which are tolerably well executed. They live on potatoes, yams, bananas, sugar-cane, and fish; sometimes eating a species of marine *fucus*, which they gather on the sea shore.

Fowls, though few in number, are the only domestic

domestic animals we found at Easter Island; and of all the wild animals, the rat is also the only quadruped. But few sea fowl were observed, and the sea appears to produce no great quantity of fish.

There is a large crater in the eastern part of the island; and throughout almost the whole of its circumference, we saw on the sea shore a great number of statues, or a kind of mis-shapen busts, on which are very rudely marked the nose, mouth, and ears. At the foot of these statues were found the mysterious caverns mentioned in Captain Cook's account. In these little caves, which we were permitted to visit without any opposition from the natives, each family buries the remains of its departed relations.

La Pérouse, not content with having already made several presents to these islanders, but still desirous of affording them further proofs of benevolence, and contributing in the most permanent manner to their happiness, left two ewes, a she-goat, and a sow, with one male of each species; sowed all kinds of pulse on the island, and planted the stones of peaches, plumbs, and cherries, together with pips of oranges and lemons.

Should the conduct of the natives not frustrate so laudable an intention, that celebrated navigator will have the glory not only of contributing to their benefit, by stocking their country with animals and vegetables adapted to their support, and calculated to supply their primary wants, but of securing to succeeding navigators every kind of refreshment.

Having executed these benevolent designs, we weighed anchor, and directed our course towards the Sandwich Islands. As soon as we came within sight of Mowee, one of the islands of this archipelago, two hundred canoes came off to meet us, laden with pigs, fruit, and fresh vegetables, which the inhabitants sent on board, and forced us to accept, without any stipulation or condition on their part.

The wind being very strong, and having freshened our way, these resources could profit us but little, and we were soon compelled to leave this picturesque and beautiful island, which, with the great concourse of inhabitants who surrounded us manœuvring in their canoes, formed the most animated and delightful spectacle imagination can depict. On the 29th of May we anchored to the westward of this island, which is situated in $20^{\circ} 34' 30''$ N. lat. and $158^{\circ} 25'$ W. long. from Paris. The vegetation of this part of the island is not so strong, nor the population so numerous as its eastern part, where we had just landed; yet scarcely had we cast anchor before we were surrounded by the inhabitants, who brought us in their canoes pigs, fruit, and fresh vegetables. Our exchanges were made with so much success, that in a few hours we received on board nearly three hundred pigs, and a sufficient quantity of vegetables, which cost us only a few pieces of iron; and I believe there are few markets in Europe where the trade is conducted with more dispatch or equal good faith, as these islanders shewed in this sort of commerce.

Though the island of Mowee abundantly supplies the inhabitants with animals, and all kinds of provisions necessary to their subsistence, they are far from exhibiting the same healthy appearance with those of Easter Island, where only part of those resources are found, and these in less abundance; nor are they endowed with equal grace and beauty of person. Yet the inhabitants of Mowee appeared to me not only to have some analogy in their form with those of Easter Island, but in general even to promise a more robust constitution, had it not been impaired by disease. The common height of these people is about five feet three inches; they are rather of a spare habit of body, their features coarse, their eye-brows thick, their eyes black, their look determined though not ferocious, their cheek-bones high,

high, and their nostrils rather wide; their lips thick, their mouth large, as well as their teeth, which, however, are very fine and regular. Some individuals were observed to have lost one or more of their teeth; and a modern navigator supposes them to pull them out in grief, when mourning for their relations or friends; but I could not obtain any information either to confirm or oppose that opinion.

This people are apparently more muscular, their beard more bushy, and their body, as well as the pubis and pudendum, more hairy than in the inhabitants of Easter Island. Their hair, which is black, is cut into the form of an helmet, and a part which they suffer to grow, representing the plume, is red at the extremity, being coloured probably with the acid juice of some vegetable.

The women are much smaller than the men, and possess neither the gaiety, sweetness, nor elegance of form of those at Easter Island, being in general ill made, with coarse features, and a gloomy countenance, and rude, stupid, and awkward in their manners.

The inhabitants of Mowee are gentle and prepossessing, and, in a manner, polite to strangers. They paint themselves, tattoo their skin, and pierce their ears and the cartilage of the nose, in which they wear rings, by way of ornament. They are not circumcised, but some use a kind of infibulation, drawing back the prepuce in front of the glans, and fixing it there with a ligature. The dress of both sexes consists of a piece of cloth covering the genitals, and another wrapped round their bodies. These cloths, made from the paper mulberry, are beautifully variegated, being painted with great taste, and such various and regular designs, that we might almost suppose them intended to imitate our printed calicoes. Their houses, collected into villages, are built in the manner of those in Easter Island, but their form is square.

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With regard to the government of Mowee, I particularly observed the inhabitants to be formed into various tribes, each of which is under the controul of its respective chief.

The excellence of the climate, and the fertility of the soil, would afford the inhabitants every means of happiness, did not leprosy and syphilis rage among them, both very generally and with great violence.

These most destructive and humiliating scourges of the human race are distinguished among these islanders by the following symptoms, namely, buboes, and their cicatrices, with loss of substance after suppuration, warts, phagedænic ulcers, with caries of the bones, nodes, exostoses, fistulas, and tumors both of the lachrymal and salivary ducts; serophulous swellings, inveterate ophthalmia, ichorous ulcerations of the tunica conjunctiva, atrophy of the eyes, blindness, inflamed prurient herpetic eruptions, with indolent swellings of the extremities; and among children by scald heads, or the malignant tinea, from which runs a fetid and corrosive sanies. I remarked that the greater part of these unhappy victims of incontinence, when arrived at the age of nine or ten years, were feeble, languid, affected with marasmus, and ricketty.

The indolent swelling of the extremities, prevalent among the people of Mowee, and which Anderson, surgeon to Capt. Cook, has observed among the greater part of the inhabitants of the islands in the South Sea, is doubtless a symptom of elephantiasis considerably advanced, as I am well assured from several observations I made on a great number of lepers in the lazarettos at Madeira and Manilla.

In this stage of the leprosy the skin has lost a portion of sensibility; and if the activity of the virus is not restrained by proper regimen and suitable treatment, the obstructed parts soon entirely lose their irritability as well as their sensibility; the skin becomes
scaly,

scaly, and phlyctenæ are formed, containing a fetid and corrosive sanies; and these, unless carefully attended to, become gangrenous, or carcinomatous ulcers. The nature or quality of their food may concur, with the heat of the climate, to support and propagate this endemick disease of the adipose membrane. The very pigs, which form the principal food of the inhabitants of Mowee, are affected with leprosy in a very high degree, and in great numbers. I examined some, and found their skins not only scabby but full of scurf, and entirely destitute of hair. On opening them I found the cawl sprinkled with tubercles, and the viscera so full of them as to excite disgust in men not delicate in other respects. Among the diseases whose ravages so deplorably afflict these islanders, there are some which appear to be produced by the venereal virus, in its greatest activity, though it more frequently appears in a degenerated form, or combined with the itch.

Time and circumstances did not permit me to make any enquiries into the treatment employed by the inhabitants against these diseases, but to judge from their abandoning themselves to grief, and the progress their infirmities have made, I should be led to think they are unacquainted with every means of recovering themselves from so distressful a situation, or even of alleviating its miseries.

Was the venereal disease then first communicated to the Sandwich Islands by the sailors who accompanied Captain Cook? The progress which this disease had made among the inhabitants of Mowee, both in its propagation and all its consequent symptoms of developement, when that navigator landed there nine months and a half after having communicated, for the first time, with the islands of Atooi and Oneehow, added to the defects observable in the conformation of individuals of all ages, though they may not amount to demonstration, yet afford reason to be-

lieve that the venereal disease existed there before Captain Cook discovered these islands. Some further proof of this may arise from his own assertions. When he landed at Mowee he communicated with several of the natives who had brought him fresh provisions in their canoes some leagues out at sea. On this occasion he says—"I wished to preserve this island free from the venereal disease, by forbidding my men all communication with the women of the country; but I soon perceived that it already existed there, and I can only account for that misfortune by supposing a communication with the neighbouring islands."

This explanation is certainly the most natural and simple; but it does not sufficiently account for even the possibility of such a phenomenon. Though the islands of Atooi and Oneeheow are separated from Mowee only by channels a few leagues wide, it does not follow that the communication between these islands must be so easy as to admit of spreading the venereal disease, by that means, among the inhabitants of Mowee. It also appears, from the accounts of Captain Cook, that these islands are rarely in amity with each other, without which it cannot be supposed their inhabitants would have frequent communications. And how can we reconcile, with such a supposition, the conduct of the inhabitants of Mowee towards that navigator at his landing on the island? Had these islanders had cause to complain so bitterly of the strangers, who had recently landed among their neighbours, would they have provided so anxiously for all their wants? Would they not rather have shewn repugnance towards that navigator, instead of incurring the dangers of carrying him the productions of their island? Nor do I think we can account for so rapid a contagion, without admitting that syphilis may be propagated like epidemic diseases, by a particular state of the atmosphere,

atmosphere, concerning which exploded hypothesis experience has long undeceived every intelligent surgeon and physician. It has convinced us, this malady can neither be produced by unwholesome food by contagion in the air, nor by the spontaneous corruption of the humours, but solely by immediate contact with persons infected with the virus.

Under all these considerations it appears probable the venereal disease existed in the Sandwich Islands before Captain Cook landed there, and that it was either indigenous, or had been carried thither by some former navigator.

Historical and geographical researches may afford some light on the origin of the venereal disease in that cluster of islands, but I omit to discuss them as foreign to the intent of this paper *.

GEOGRA-

* Reminding the reader of the notes I have inserted in a former volume, I cannot refrain from observing how injurious is the spirit of system, and how eager to reject all the arguments unfavourable to the opinion intended to be established. The inhabitants of Mowee received Captain Cook with kindness, because, perhaps, they were ignorant that to him they owed that cruel malady which had been communicated to them by their neighbours; and experience proves that the authors of similar evils are readily pardoned, from the remembrance and fascination of pleasure. La Pérouse, who came some years after to the Sandwich Islands, might, in the eyes of the Indians, easily be confounded with the English. But did he discover the least appearance of resentment? On the contrary, he tells us that the conduct of the women universally tended to renew a communication which the men promoted. The dangers attending their exchanges, of which M. Rollin takes notice, have no existence with respect to men who, being almost amphibious in their habits, find a most powerful attraction in a few trinkets, or in the great utility of iron, which to them is so precious, so invaluable. As to the rapidity of its communication, can we be surprised at it among a people who know no conjugal tie, or right of property in women, and regard no other laws than those of nature?

I persist, therefore, in the opinion, that my navigators, whether ancient or modern, who discovered these islands of the South Sea, carried thither the venereal disease. I am, however, of opinion, with some of the learned, that this disease was not even to us a consequence

GEOGRAPHICAL MEMOIR ON EASTER ISLAND,

By M. Bernixet, Geographical Engineer.

On the 8th of April, 1786, at half past six in the evening, being to the eastward of Easter Island, the land appeared very distinctly, as delineated in the first view. The summit A, and all the declivities from it were very well defined; the two extremities very steep, and almost like peaks; the descent A H was indented from H, to nearly its middle, with three lesser summits; another descent A I, on the contrary, formed two salient, and three returning flexures by no means abrupt.

The land, which stretched to the north west of this first, was much less distinct, and its extremity almost entirely obscured in fog. The summit K of its highest bluff rises to about two thirds of the highest elevation, which is that of the hill A, and is almost perpendicular at the northern extremity of the descent K. Towards the north its descent is gentle, having two salient and three returning flexures; and towards the south, a single rise shelving on both sides and faintly

sequence of the discovery of the continent of America, where it appears to have been unknown till it was carried there by some navigator; while if we trace back its genealogy, we shall find it had probably an earlier existence in Europe. It might, however, have been introduced among us from the Antilles, and perhaps from the islands of St. Domingo and Cuba. Be that as it may, let us still be just; and not forget, under the impression of a malady against whose destructive ravages we are able to defend ourselves, and which appears to remit its fury while it extends its influence, that on the other hand to the same discovery we are indebted for bark, ipecacuanha, gum, or more properly resin of copal, simarouba, cochineal, cocoa, guaiacum, maize, &c. besides the first hints of many of our most useful establishments, such as our posts and military hospitals. The arts cannot be unmindful of the knowledge, that discovery has procured them, while the Americans themselves have received very few benefits to compensate the introduction of the small pox, that scourge which they derived from us, and which has made such incalculable ravages among them.—*French Editor.*

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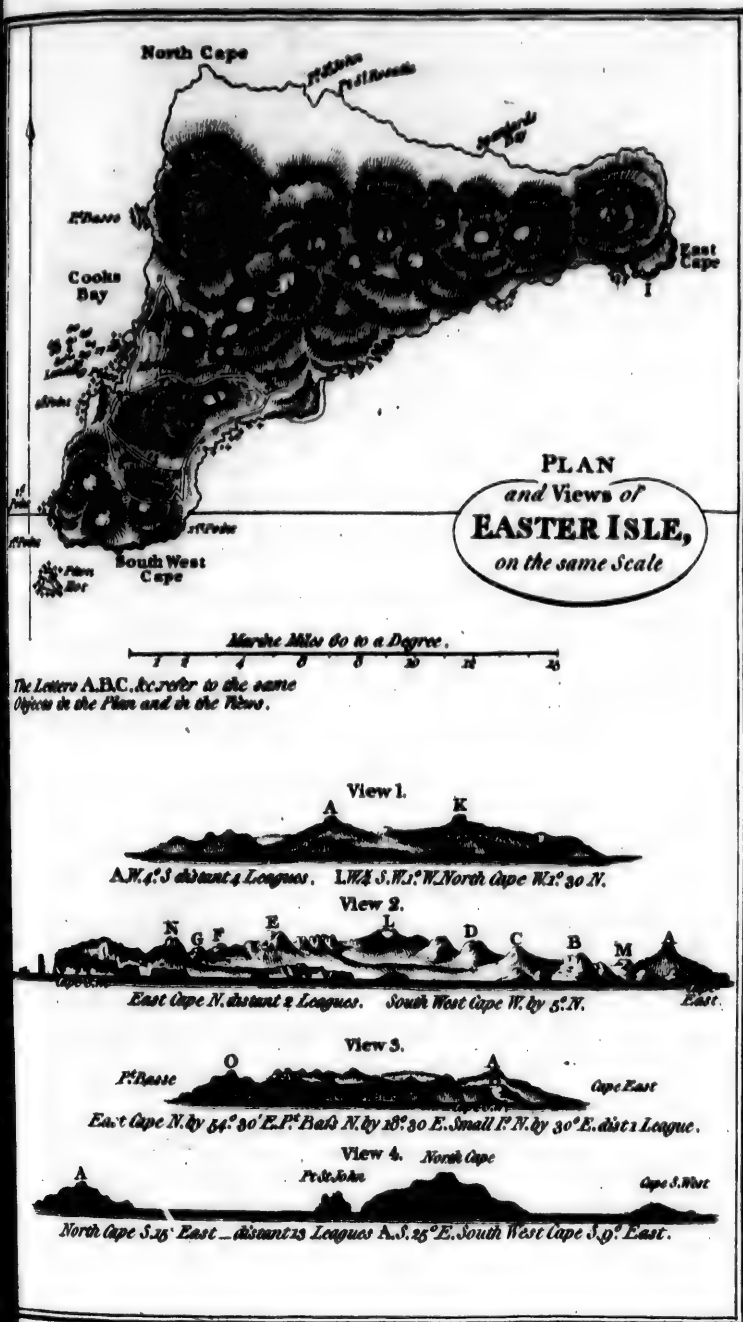
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defined, unites this land to the former, at about one half its height. Its length is about three fourths of that from K to L.

The elevation of land stretching to the S. W. of the point I, is not half the full height, and in length does not exceed half the distance between I and H. Its outline is broken by B, little steep hills, and one lower than these, which terminates at the south with a gentle declivity towards the sea. The fog which enveloped this last, prevented me from taking its bearings, nor could we determine the full extent of the angle under which the island was seen.

The summit bore W. 4° south, distant four leagues.
The point I, west by south one degree west ;
And the northernmost cape, west $1^{\circ} 30'$ north.

On the 9th at 27 minutes past six in the morning, the land appeared as in view the 2d. The middle of the island L appeared joined, and of equal height with the summit A of the most easterly hill mentioned above. To the south-west of this hill we perceived two mammelons B, each appeared of a very rapid and broken descent, covered with whitish rocks. The land at the east point, which rose before like a peak, now sensibly sunk and became almost level with the two hills ; its elevation was then inconsiderable, and varied only for about the length of a quarter of a league, by a little hill M, flat and broken off perpendicularly to the westward. The mammelons appeared less distant from the sea, and the coast a little more advanced to the eastward. Two hills C and D, in the second range, joined the mammelons by a gentle and very long declivity, with the middle of the island. These two hills were hollow in the middle of their summit. The first C, was the smallest, and appeared the nearest. Before it was a very inconsiderable rising ground and behind it a high land, rather more distant than any we had perceived before, having two well defined summits

summits, and joining at the back of the mammelons the low land mentioned before.

The middle of the island appeared on the third range, and its declivity, which was uniform to the sea shore, was interrupted only by a small rising ground, nearly like that before the hill C.

The summit of the hill C appeared hollow, and nearer to the sea shore. The breaks in its declivity were very apparent, and two small intermediate hills joined it with the center L, from which it appeared as far distant on the south-west, as it was from the hill G, on the north-east. This last, which was nearly of the height of D, was more pointed and rather lower than another to which it joined, toward the north-east.

The hill N, next to it, was also rather higher, but its base was large, and its north-eastern declivity descended a little lower than that toward the S. W. This last adjoined that of the extremity of the island, which in this part is nearly as elevated as the middle L, and terminates perpendicularly.

To the westward of this point, a rock of the shape of an obelisk, then became visible, and afterwards a little islot further in the offing, which from its little elevation could not be discovered before.

At 32 minutes past 10, the land appeared as in view the third; the base of this obelisk being concealed behind the western extremity of this islot. The coast, which on the south-west side was very high, broken and peaked, presented to the eye a large and deep inward sinuosity, almost perpendicular to the eastern extremity of the islot. This sinus just before resembled a large cut, which we were then surprised to find was not continued to the level of the sea. Behind this and on the second range, was perceived a continued crest, the steep and rugged descents of which appeared concave, and its centre being far from the eye, while the two extremities approached it, and converged

converged with the summits of the point 2, and the S. W. cape. That of the latter was almost horizontal; the other, on the contrary, gradually descended in irregular breaks, stretching its base for three quarters of a league on the north-north-east, to a point 3, which is that furthest to the southward of Cook's Bay, and stands before the landing place. We were rather more than two leagues distant, to the S. S. W., from this point 3, when we discovered to the northward bearing N. 18° east, a low point behind a small islet, lower than the true point, and appearing at that distance joined to it by its eastern extremity. This was the northernmost point of Cook's Bay, stood about three leagues distant, and rose gently towards the east, as far as a summit O, whence a perpendicular let fall to the edge of the sea, would have cut the point 3 to the eastward at a small distance from its extremity.

This summit appeared on the third range, and approaching near the eye, as it descended towards the south-east, it joined the land in front half way between the points 2 and 3.

The mammelons or hammocks B, more defined than the lands adjoining the summit O, appeared on the same range, though they were much farther distant. We began to lose them behind the easternmost land of the south-west cape, point 1; and above them a little more to the eastward, we saw the summit A, mentioned above, (views 1 and 2) the declivity of which had no other interruption in its course than from a very small hill between it and the east point.

From the result of the courses and bearings above described, the chart of Easter Island has been constructed. Each of the principal points was determined by several operations; and from thence it follows, that this island lies very nearly east-north-east and west-south-west in its greatest length, taken from the middle of the eastern cape, to the westernmost point of

of the south-west cape. A line connecting these two points, would pass within the land along the south-eastern coast; it would be rather more than four leagues in length, and parallel to another line joining the southernmost land of the east cape, to the southernmost land of the south-west cape; and the interval between these two lines would be very near half a league.

A line running along the western coast, and joining the westernmost and northernmost points, would lie in a direction north-north-east and south-south-west; its length would be two leagues and three quarters; and intersecting Cook's Bay, would not pass over the land till beyond the north point of that bay.

A third line, beginning at the north point, and ending in the middle of the eastern cape, would run along the north coast, which is the third side of the island, intersecting the two most considerable points, Gonzales Bay, where the Spaniards anchored in October 1770, and the northernmost land of the eastern cape. This line must run east by south 5° south, and west by north 5° north. Its length is two leagues three quarters.

The figure of this island is therefore an isosceles triangle, the longest side of which, on the south-east, is rather more than four leagues, the adjacent angles measure each 41° , that opposite the base 98° and the northern and western sides, are each two leagues three quarters long.

From these data, it would be easy to ascertain its superficial measurement; but the calculation would be imperfect, and the amount less than the true quantity, because the total measurement of the capes and points stretching into the sea is greater than that of the sweep of the creeks and bays. This amount would, therefore, be found only 30,870,671 square
toises

toises *, instead of 34,935,319, which is about the true measurement of its superficies. The difference of these two sums is 4,064,648 toises, very nearly equal to $\frac{1}{4}$ of a square league : and the whole superficial extent is therefore four square leagues and two tenths.

The depth of water in Cook's bay, varies from ten fathoms over a bottom of coral at 200 toises from the shore, to 50 fathoms with a bottom of sand and stones, at the distance of half a league west of the sandy creek. The bottom shelves rapidly, and an anchor will not hold, except for a small space round the place where our ships lay ; a little further in the offing the depth would be too great to anchor in ; and nearer the land the coral would cut the cables, and by the westerly winds blowing in shore a vessel would be embayed on the coast. These winds, which are very rare in this parallel, would not, however, be so strong as to prevent her from getting to the northward.

From the chart of this island given by the Spaniards it appears, the same soundings are met with nearly throughout its whole circumference. By this chart I have laid down the north coast, which we were not able to see as near as the two others. The Spaniards anchored on the open coast, and in foul ground ; and the prevailing winds there blowing always in shore, there is no reason to prefer their anchorage to that of Cook's Bay.

The particular plan of this bay has been taken by a single operation, estimating at each bearing the distances which, in the course of survey, were deduced from the points already laid down. The topography is the less striking, as the declivity of the different bluffs is more gentle, and the steepnesses are less nu-

* The Paris toise, as set off on the standard kept in the Royal Society, contains 76,710 English inches by the same standard ; and the English yard is to the Paris toise nearly as 107 to 228.—*Translator's note.*

merous: yet it would be difficult to reach their summits, on account of the immense quantity of stones which cover the surface, were it not for paths which intersect the island in all directions. The width of these paths does not exceed a foot and a half; they were all firm and unobstructed with any stones, leading principally to the huts and cemeteries or morais. Some of these huts are constructed of dry rough stone (vide the plate fig. 1.), and their shape ellipsoidal. The walls, A, are very thick; the roof, B, (fig. 2.) is made of large stones, a little arched within side, and placed across, resting at both ends on the upright wall. A small opening, C, at the extremity of the small axis, D, serves for a door and a window; only one person at a time can pass through it, and that not without crawling on his hands and knees. The walls are neither plastered nor rough cast, and the inside is not divided into different apartments.

	Feet.
Length of the transverse axis -	24 French.
— of the conjugate ditto -	6
Height in the center -	7
Height at the top of the ellipsis -	4
Thickness of the wall -	4
Height of the aperture or door -	2
Width of ditto -	2

Ten feet before the opening, and on the elongation of the small axis, is a door G, the summit of which is below the level of the ground. The uprights H, the cornice I, and the fill K I and K H (fig. 2.) are of stones very well squared and fitted together without cement. The approach to it is by a uniform descent L (fig. 3.) the declivity of which is very gentle, and the earth supported on each side by a lining of stones, most of which are 2 feet 10 inches long, 2 feet broad, and 10 inches thick. Four steps of a ladder N, also of hewn stone, terminate the slope, and lead

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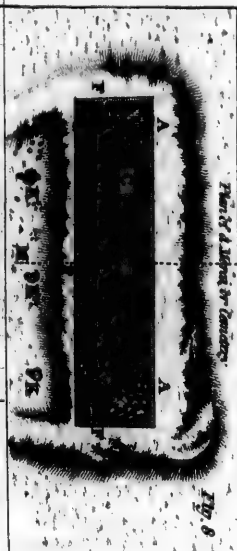


Fig. 8

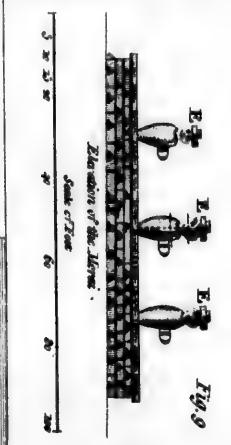


Fig. 9



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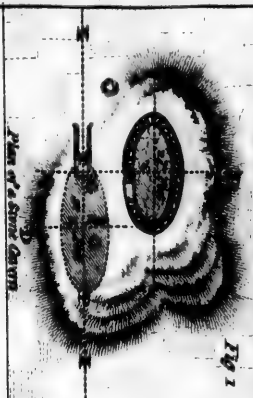


Fig. 1

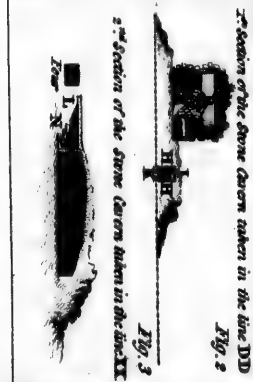


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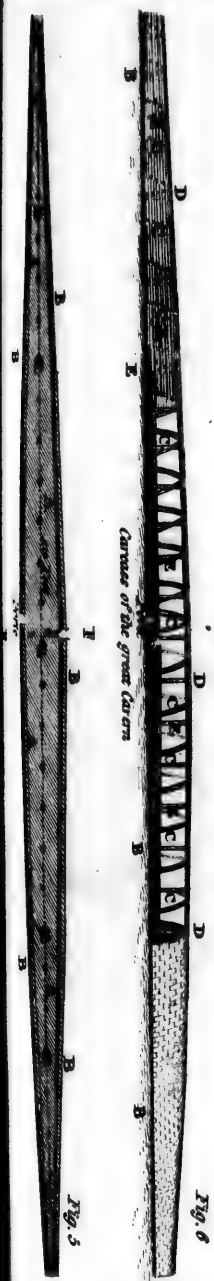


Fig. 5



Fig. 6

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lead to the entrance of a subterraneous cavern O, excavated from the rock. Its form, which, except in size, exactly resembles that of the cottage above ground, is truncated at one of the summits P of the elliptical base.

The islanders in forming these caverns, have often taken advantage of natural cavities, which are frequently found in the masses formed by the torrents of lava. For this reason they are often irregular, and some are found at a distance from any cottage; but wherever the projecting points of the rock can be removed by simple means, they seem always to give them their favourite shape, and then the mean dimensions of them are as follow.

	Fect.	Inches.
Depth of the cavern, or length of its		
transverse axis	30	0
Width at the middle	11	0
Height in the center	5	6
Width of the door	2	0
Height of ditto	3	0

In these subterraneous caverns the inhabitants store their provisions, utensils, wood, and in general all their possessions.

At a small distance from the cottage and cavern is an oven without a covering; being only a round hole dug in the earth, the area and walls of which are lined with rough stones.

Its diameter is	3 feet.
Depth	2

It may be remarked also that in the elevation (fig. 4.) the north-east side, on which the winds generally blow, is higher than the rest, and that the top of the cottage serves for a terrace. This kind of screen may also protect them against the rain, which, coming in squalls, seldom falls perpendicularly.

The

The same plan is observed in other cottages situated in the middle of considerable plantations. These have the ellipsis of the ground plan A very eccentric (fig. 5.) and are very narrow in proportion to their length. Their foundations B are of hewn stone sunk throughout their breadth in the ground. Their average length is two feet, and their thickness six inches, having holes at different intervals to receive the stakes C (fig. 6.) each serving for main timbers, and meeting other transverse stakes D. These last terminate the roof, and are supported by perpendicular stakes E, fixed in the ground at intervals of ten feet. The main timbers are bound together by transverse perches reaching along the whole length at two feet distance from each other. The highest point is in the center, and if a plane perpendicular to the transverse axis of the ellipsis were made to pass through the roof, this would also be of a semi-elliptical form. (See the plan, the framing and the vertical section, taken longitudinally, fig. 5, 6, 7.) The whole is covered with rushes of nine or ten lines-diameter at the lower end, united together like matts, by threads twisted with the hand. The two doors, one on each side, are not larger than those of the small cabins; and the oven of the same size with that before described, is palisaded to the windward.

Transverse axis of the ellipsis	310 feet.
Conjugate ditto	10
Height at the center	10
Height at the extremities	4
Width at ditto	3

It cannot be said, however, that the form of the large dwellings is invariable; for some of them make towards the middle, either in the ground plan or the elevation, a sharper curvature than that of the ellipsis.

The small cabins are of the ordinary form; and most of them so very small as not without difficulty to afford

room

room enough for six persons. Some have at the entrance a covered portico, which architects would perhaps call either a *niche* or *peristyle*, though it deserves neither the one nor the other of these names.

There are also hollow rocks, under which the islanders find shelter. The soil of these retreats is covered with rushes, and the wind freely circulates through them, whence they appear to be intended for summer habitations.

The cemeteries or morais, (fig. 8, 9, and 10,) are of a more remarkable construction; and though their dimensions are very various, they are constantly of the same undeviating form. On an inclined plane, like that of the soil, is erected a sloping wall A, built with the hewn stones before described. The height of this wall is proportioned to the declivity of the ground; and on its summit is fixed a horizontal platform B, made of rough stone, on which are placed horizontally, and let into the former, rectangular pieces of hard stone C, as a base for supporting several almost shapeless masses D, resembling busts. To these figures are added, as may be seen in the plate, crowns or capitals E, perfectly cylindrical, and a little concave in the under part, to admit the head. This is of red lava, extremely light and porous. Two steps F, below the platform, made in the same manner, and covered with the same stone, lead, by a gentle descent, to an esplanade, bounded by a kind of parapet, apparently made of the earth which had been dug up to level the ground. There are also some steps, on the upper part of which is a plinth, running along the whole length, on which are rudely represented the figures of recumbent skeletons. Near the lower step, towards the esplanade, are entrances or narrow trenches, leading to a subterraneous cavern, in which are a great quantity of human bones. Of this cavern the form

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is very irregular, and its size by no means depends even on that of the morai.

	Feet.	Inches.
Height of the wall - - -	8	0
*Length of the platform - - -	80	0
Breadth of ditto - - -	12	0
Height of the steps - - -	2	0
Breadth of ditto - - -	3	0
†Length of the esplanade - - -	384	0
Breadth of ditto - - -	324	0
Height of a large bust - - -	14	6
—— from the base to the chin - - -	9	6
—— from the chin to the top of the head - - -	5	0
—— to the underpart of the nose - - -	1	6
Length of the nose - - -	1	8
Projection of the nose - - -	0	10
Breadth of the nose at the lower part - - -	1	2
Length of the ears - - -	2	0
Longest diameter of the orbit - - -	1	0
Ditto of the eye - - -	1	0
Lesser ditto of the eye - - -	0	10
Breadth at the base - - -	6	0
—— at the ears - - -	5	3
—— at the shoulders - - -	7	6
—— at the neck - - -	4	6
Thickness at ditto - - -	3	0
—— at the belly - - -	3	6
Height of the capital - - -	3	1
Its diameter - - -	4	9

These measures are taken from one of the monuments in particular; their dimensions are extremely various. Although most of the stones used in these structures are very well squared, it may be remarked,

* We saw one 267 feet long.

† Almost all of them are much smaller.

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Feet. Inches.

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80 0

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2 0

3 0

384 0

324 0

14 6

9 6

5 0

1 6

1 8

0 10

1 2

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that some of them are rather convex on every side ; which seems to shew they have not been cut, but ground into shape ; and the exact parallelism of the greater part is no proof to the contrary, as the degree of perfection must depend on the skill of the workman. The difficulty of carrying and raising them, without machines, will disappear when it is considered, that by a certain number of hands, some ropes, two levers, and three wooden rollers, the heaviest masses may not only be drawn, but raised and set up.

Their plantations are very numerous, and the fields, which are planted with yams and potatoes, are all of a rectangular figure. They have not, like some of the paper-mulberry plantations, either hedge or enclosure. Those of the bananas are disposed in the order called quincunx *, and kept up with great care. The coast is every where steep, and there are very few creeks that afford a landing. It is remarkable that no channels are met with directing the course of the water, which is doubtless lost among the innumerable loose stones with which the island is covered. Not a single river, or even a brook, watered any of the places we visited ; and only a few inconsiderable cavities, on the tops of rocks, contained a small quantity of very ill-tasted water. Trees are no less scarce, for we could discover nothing justly deserving that name.

At nine in the morning, of the 10th of April, the island being distant about 13 leagues, appeared as in view (4.) At the middle of the island, about the summit of North Cape, though involved in mist, we could distinguish its escarpments ; it joined the sea, on the western side, by a pretty gentle and regular declivity. The eastern side was also very

* This arrangement exactly resembles that of the five pips on playing cards.—*Translator.*

regular, and rather longer than the former. The height at the two points, called by the Spaniards *San Juan* and *Santa Rosalia*, rising above it at its extremity, appeared in front; and the low lands of the coast, between the three principal capes, were obscured. The summit A of the eastern cape, indistinct, and completely separated from the rest, appeared like another island. Its height was half that of the middle, and the interval between the two was equal to the base of the principal division. That of the eastern cape appeared only equal to a quarter of the former.

The south-west cape was still perceivable in the west, though very low and indistinct; it was almost flat, and its distance from the central land was only half the base of this latter.

The summit of the island bore S. 15° E.

The summit of A, the eastern cape, S. 25° E.

And the south-western cape, S. 9° E.

(Signed) BERNIZET.

On board the *Bouffole*, April 18, 1786.

PHYSIOLOGICAL AND PATHOLOGICAL MEMOIR ON
THE AMERICANS.

By *M. Rollin, M. D. Surgeon Major of the Bouffole Frigate.*

WHEN I first commenced this undertaking, I was unacquainted with the paper of instructions sent by the Medical College to M. de la Pérouse; unforeseen accidents deprived me of that assistance, but though I may not have completely obtained the object which the College has proposed, I entreat them to receive with indulgence, my observations on the same subject.

Of

Of the Natives of Chili.

In the frame of body which these Americans have received from Nature, there appears nothing extraordinary. Their stature is generally lower than that of the French, and they appear much less robust: yet they support with fortitude all the fatigues of war, and the hardships and privations which follow in its train. On various occasions they have checked the arms of the Spaniards, and sometimes even borne away the palm of victory. Their history abounds in examples of courage, by which they have deservedly obtained even from the proudest of the Spaniards, the glorious appellation of *Indios bravos*, or brave Indians; a title, the remembrance of which still reflects a ray of honour on their subjugated descendants.

The same general character of countenance is remarkable in almost every individual of this nation. Their face is broad, and rounder than that of Europeans; their features coarse; their eyes small, dull, black, and deep-seated. Their forehead is low, their eyebrows black and full; and their nose short, broad, and flat. They have prominent cheek-bones, thick lips, a large mouth, a chin that projects but little, and ears of the ordinary shape.

The women are small, ill made, and of a forbidding countenance. I did not see one among them that could boast that softness of feature, that grace and elegance of form which constitute the usual characteristic of the sex.

Both men and women pierce their ears, and the cartilage of the nose, which they ornament with trinkets of glass and mother of pearl. The colour of their skin is a reddish brown, and that of their nails somewhat deeper. The hair of both sexes is black, very strong, and very thick. The men have very little beard, but their axillæ, and pubis, are

very well supplied, while the women are in general without hair in both those parts.

Of the Aborigines of California.

This nation is situated at the same distance from the line in the northern hemisphere, as the inhabitants of Chili in the southern.

During our stay at Monterey I had occasion to examine a great number of individuals of both sexes, and I observed but little resemblance between them and the natives of Chili. They are taller, and their muscles more strongly marked, but they are not so courageous or intelligent. They have low foreheads, black and thick eyebrows, black and hollow eyes; a short nose depressed at the root, and their cheek-bones projecting. They have a mouth rather large, thick lips, strong and fine teeth, and a chin and ears of the common form. They are extremely indolent, very incurious, and almost stupid. In walking they turn in their toes, and even their step, thus tottering and infirm, discovers at first sight their characteristic pusillanimity.

The women of California have some particular qualities peculiar to themselves, and not observable in those of Chili. They are taller and their limbs more regularly formed; their figure is generally better defined, and their countenance less forbidding.

The hair of both these nations is very nearly similar, but the Californians have their beard and their pubis more covered with it than the natives of Chili. Yet I have remarked a great number of the men totally devoid of beard, and the women also have very little hair either on the pudendum or in the axillæ. I was informed these particulars were solely the effects of art, and that the men are accustomed to pluck out their beards, and the women these tufts of hair with bivalved shells or a cleft stick.

This assertion appeared to be confirmed, by observing

serving that some of the men who were beardless, had notwithstanding a great deal of hair on other parts of their bodies, and the women whose axillæ and pudenda were bare, had a quantity of downy hair on their legs and arms.

These Americans also paint their skin by way of ornament. They pierce their ears and wear in them trinkets of various kinds and fashions. Their skin is tawny, and their nails of a lighter colour than those of the inhabitants of Chili.

Of the Americans who inhabit the Neighbourhood of Baie des Français.

THESE people bear very little resemblance to the Californians. They are larger, more robust, of a more agreeable figure, susceptible of the greatest vivacity of expression, and are very superior to them in courage and intellect. They have rather a low forehead, but more open than that of the Americans of the south; black and animated eyes, much thicker eyebrows, a nose of a regular shape and size, rather wide at the extremity; lips not fleshy; a mouth of a middle size, fine and well set teeth, and the chin and ears very regular.

The women are equally superior to the Americans I have spoken of, and have more sweetness in their countenance, as well as more grace in their limbs.

Their faces would be still more agreeable, if they had not adopted the absurd custom of wearing, as an embellishment in their under lip, a small piece of wood of an elliptical form. It is a little concave on both sides, as well as round the edges, and is commonly half an inch thick, two inches in diameter, and three in length.

This lip-piece not only disfigures them, but causes an involuntary flow of saliva, equally inconvenient and disgusting; yet the women alone use it as an

ornament, and prepare their infant girls from the moment of their birth for its reception.

For that purpose, they pierce the under lip with a kind of pin, either of copper or gold, which they leave in the aperture, or fix in it a ring of the same metal, which the girls retain till the age of puberty. At this period they gradually increase the aperture, by substituting in lieu of this pin or ring, first a small, and then a larger piece of wood, progressively increasing its size, till it attains to the dimensions before stated.

This strange custom shows how far the lip may be dilated to remedy the deformity of these parts, when chirurgical operations render a partial destruction of them necessary.

This people are of an olive colour; and their nails, which they wear very long, are of a fainter hue; but it may be remarked that the skin varies in its shades, being lighter in some individuals, and on those parts of the body which are not exposed to the action of the air and sun.

Their hair is commonly not so strong and black, as those of the South American, and I observed a great many individuals, in whom its colour was that of a chesnut. They have also a fuller beard, and the axillæ and pubis much better supplied with hair.

The perfect equality of their teeth, induced me at first to suppose it the effect of art, but on examining more nearly, and with greater attention, I could perceive no destruction of the enamel, and therefore concluded nature must have conferred on them that regularity.

This nation paint their body and face, tattoo themselves, and pierce their ears, and the cartilage of the nose.

Some writers imagine the custom of painting the body, which prevails so universally among the nations of Africa, of the West Indies, and of America, is on-

ly

ly intended as a defence against venomous insects; but my own observation led me to believe its sole object is to adorn and embellish their persons.

I found the same custom established among the inhabitants of Easter Island, and the natives of *Baie des Français*. Yet I saw among these people neither insects nor reptiles of a venomous nature. I remarked also, that they never painted their bodies except when they came to visit us, and that in their own habitations they were never found with this ornament,

General Observations.

Those writers who have considered the Americans as a degenerate race have followed the wanderings of their own imagination, without any regard to truth.

Some have even extended this reproach of degeneracy to Europeans naturalized in America: but a Washington, an Adams, and a Franklin, have already refuted that assertion, with the greatest honour to themselves, and rendered any discussion of the subject from me superfluous.

To me it appears, these writers have been equally unhappy in their opinions upon the pretended degeneracy of animals, brought from the ancient to the new continent.

As to the existence of any defect or particular modification in the internal structure of the parts of generation in these nations, which has been also attributed to the degeneracy of the human species in America, I have not had any possible means of making the researches necessary to determine the fact. But judging of the organisation of those parts from the perfection of their external appearance, I should deem them completely free from defect.

Nor have I ever discovered among these people either an enlargement of the scrotum, a prodigious swelling

swelling of the penis, or men whose breasts yield milk as described by some navigators ; neither have I observed any savage nation swifter of foot, or more perfect in the organs of sense than Europeans. If any difference exists in the perfection of these faculties, the advantages preponderate in favour of civilized nations.

The natural progress of life among these nations, in all its periods of increase and decay, appears to be the same as with us, but the climate, their mode of life, and other habits, may have introduced some slight differences.

At Chili and California the appearance of the beard and the change of the voice announce the age of puberty, in males about their thirteenth year. The girls arrive at puberty about the age of eleven or twelve, of which the enlargement of the breasts, and the appearance of the menstrual flux are the usual indications. The quantity of this periodical evacuation varies, in different individuals, according to their constitution and manner of living. If no accident interrupts the natural course, it takes place every month, and continues from three to eight days. Women are subject to it until about the fortieth year, but it is not uncommon for some to afford signs of fecundity at a more advanced age.

Old age and decrepitude announce themselves among these nations, as in civilized countries, by the decrease of the humours, the loss or decay of the sight and other senses, and a change of colour in the hair of the head and beard.

Women who have borne several children have their breasts loose and pendent, and the skin of the pelvis corrugated, like Europeans in similar cases, without any observable difference.

These nations have very nearly the same passions, the same sports, and the same manner of living ; are equally violent in the expression of joy and anger, which the slightest action is sufficient to excite.

These

Those of *Baie des Français* are addicted to theft, audacious, irascible to an excess, and the most to be dreaded by strangers.

Their food is commonly game or fish; but although hunting and fishing afford them an abundant supply of fresh provisions, they prefer such as are tainted and almost in a state of putrefaction, rather than give themselves the least trouble to procure wholesome food. Their love of indolence renders them still less delicate in the preparation of their aliment. When pressed by hunger they take no trouble to dress their food, but simply broil it on the ashes, or boil it in a wooden bowl full of water, throwing in red-hot stones, which they renew, until the operation of cooking is completed.

The hours of eating are sometimes determined by their appetite, but in general each family assembles at the close of the day to their common repast.

The inhabitants of California and *Baie des Français*, make no use of vegetables, except a few pine-nuts, and other summer fruits, which, however, constitute no essential part of their food. Idleness alone makes them abstemious, but when abundance tempts, they become voracious gluttons.

These nations are divided into hords, each of which commonly forms a little hamlet. Their cabins are made of rushes, or the branches of trees, supported with four stakes, and covered chiefly with flattened bark. They are either of a square or conical form, afford little protection from the weather, and are neither stable nor commodious. The entrance is low and narrow; and the hearth being placed in the middle of the hut, the smoke escapes through a hole in the roof.

The Americans lie together on skins, spread round the fire in a disorderly manner, without any distinction, either of sex or age. They are very careless in the construction of their huts, as from the extreme volatility

volatility of their character they soon abandon them for others, which they not unfrequently erect by the side of those they have just quitted. For these erections they prefer the banks of rivers, and the south side of mountains.

The only dwellings I saw on this coast, that were solid and of tolerable magnitude, belonged to an horde that had settled on the banks of a small river, well supplied with fish, about four miles from *Baie des Français*. These cabins were constructed of large boards, or very thick planks; they were of a rectangular form, about fifteen feet in height, and would contain thirty or forty persons. The doors, which were low and narrow, opened by sliding in grooves. Within nothing remarkable presented itself. We could only perceive a kind of seat, on which the women and children were occupied in making various domestic utensils. On the little river adjoining these habitations a fishery was established, the construction and disposition of which is no less ingenious than at that described by M. Duhamel.

The men devote themselves chiefly to warlike exercises, to hunting and to fishing. Their arms consisting of the bow, the javelin, and the dagger. The women, on the contrary, seem peculiarly occupied in the preparation of their food, and the domestic concerns of their family. Though they live under the dominion of men of a very ferocious disposition, I could not discover that they are treated in the barbarous manner which navigators commonly represent: I even remarked that, on many occasions, they were regarded with respect and deference.

It appears that these nations admit of polygamy, but their marriages last no longer than is agreeable to both parties. To the exclusive possession of their women they attach little importance, often endeavouring to make a market of their favours, which they

they fell for a piece of old iron, or a few glass beads.

Though the natives of this part of America form large tribes, and have even a community of interests, and of manners, yet each family seems to live in a manner unconnected with the rest, and to possess a peculiar government of its own. These families have their Chiefs, their huts, their canoes, their implements for the chase and for fishing, and, indeed, all the various means of defence or subsistence. I thought I discovered some Chiefs who appeared to command several families, but for whom the individuals of each seemed to entertain but little deference.

These Chiefs excel the other inhabitants in stature, in strength, and even in courage. They are generally covered with enormous scars, which they affect to consider as testimonials of their valour; and are distinguished by a kind of luxury and decoration displayed in their head-dress and habiliments. The dress of the women consists of a leathern shift, descending to the middle of the leg, and a mantle of skins, which covers them from the shoulders to the knee. The men wear a similar mantle, and have a shirt of leather, and buskins of seal's skin, but their feet are commonly naked.

It is difficult, if not impossible for a traveller, who does not understand the language of these Americans, and who but imperfectly knows their customs, to give exact notions of their domestic economy, or a methodical and satisfactory description of the diseases with which they are afflicted; but it cannot be doubted their manner of living, their immoderate indulgence in pleasure, together with the vicissitudes of their climate, must subject them to many infirmities. I shall therefore enter into some details concerning the diseases of the aborigines

rigines of California, the great number of Americans assembled together in the mission of San Carlos, having furnished me with an opportunity of seeing many of the sick, and making observations on the nature of their diseases. In this labour I was assisted by Father Matthias, the missionary, and M. Carbajola, surgeon of that colony.

Great changes of temperature are experienced at California in all seasons of the year; the influence of which on the inhabitants occasions disorders peculiar to the country; and notwithstanding they seem habituated to the various inclemencies of the weather, they are more subject than Europeans to diseases arising from a continued excess of heat.

Sore throats, catarrhs, pleurifies, and peripneumonies, are the ordinary diseases of the winter season. The remedies employed in the treatment of these diseases, consist of decoctions made of plants, which they afterwards pound, and apply to the epiglottis, or other parts affected. When these diseases have attained a certain degree of violence, they commonly degenerate, through this improper treatment, into chronical disorders; and they who have survived their effects under the development of their first character, do not fail to end their days shortly in pthisis, or pulmonic consumption.

Ephemeral and intermittent fevers, and dyspepsia, are chiefly remarkable in spring and autumn.

I am uncertain whether these nations are acquainted with any remedy in the treatment of fevers as a succedaneum for bark. Their practice appears entirely confined to exciting a vomit, by forcing the finger down the throat, and procuring copious sweats by a kind of stowe baths, which I shall describe hereafter.

The diseases most general in summer are fevers of various kinds, putrid, petechial, inflammatory, and bilious, together with the dysentery. The want of
care

care or knowledge in the treatment of these diseases almost constantly produces distressing symptoms, to which the patient generally falls a victim, unless the efforts of nature are sufficient to produce a salutary evacuation, either by stool, urine, or perspiration. It may be observed, that these critical evacuations are almost always favourable to the patient when they occur from the eleventh to the twenty-first days: but the diseases most formidable are the inflammatory and bilious fevers, the progress of which is so violent, that the patient has rarely strength to resist them.

Besides these various diseases, the inhabitants of California are liable to nervous fever, rheumatism, prurient eruptions, ophthalmia, syphilis, and epilepsy. At the mission of San Carlos I saw a woman afflicted with the latter, the periodical attacks of which usually lasted two hours.

Though the greater part of these Americans are affected with ophthalmia and the itch, they are not addicted to the use of spirituous liquors, and eat neither fresh nor salt pork, generally said to be the cause of these diseases, and of tetters and other cutaneous eruptions with which they are so generally afflicted. Nor do I think they can be attributed with greater probability to the custom of tattooing and painting the skin.

Though the inhabitants of *Baie des Français* have the same customs, and live in extreme nastiness, examples of the itch, or the least trace of it, are very rare. I should add, that in our fleets stationed in America, during the last war, I observed that after a stay of five or six months, tetters appeared on the greater number of the seamen, and not unfrequently on the officers, which resisted almost all the remedies applied at those places, whereas in most cases by only passing into a temperate climate, they disappeared spontaneously.

From

From all these circumstances, it appears certain that the cutaneous diseases, which so generally affect the nations in the neighbourhood of the equator, are the effect of an acrimony of the humours produced by the great heats of these climates. I have no doubt, however, that the constant action of the sun and wind on the skin of the natives, who go constantly naked, must contribute greatly to generate diseases of that nature, and render them far more obstinate. It is a well known fact that they were formerly very common in Europe, and did not abate their malignity or frequency, till a taste for cleanliness, and the use of linen had taken place of the dirty unpolished habits of life which prevailed immediately after the fall of the Roman empire.

Epidemic diseases, such as the small pox and measles, reign in America when carried there by European ships, but the natives are very susceptible of the infection, and the ravages of the small pox, in particular, are so destructive, that to them no calamity can be more dreadful. This disease manifests itself by the same symptoms, and pursues the same progress in all its stages as among Europeans. It is distinguishable also in the same manner into the distinct or mild, and the confluent or malignant sort, but it more generally assumes the latter character.

Syphilis, which, according to common tradition, was unknown in Europe till the return of the fleet of Columbus, appears from the opinion of many well-informed persons whom I consulted at Monterey, never to have been introduced among the natives of California till after their communication with the Europeans who settled on that part of the new continent. Whatever may have been the origin of that disease among the natives, it is certain that it has occasioned among them the same ravages it has caused in Europe. Buboës, chancres, warts, gonorrhœa, &c. are its ordinary symptoms.

The

The means of cure in which the native Americans place the greatest confidence, are the sand bath, which they call *tamascal*, and a decoction of sudorific plants taken alternately. They assured me this mode of treatment almost produced the same effects.

The *tamascal* is prepared by digging a trench in the sand about a foot deep by two broad, and of a length proportioned to the stature of the patient. They then make a fire throughout its whole extent, and also on the sand which has been displaced. When these are heated, they extinguish the fire, lightly removing the sand on the top that the heat may be imparted equally; after which the patient undresses, lays himself in the trench, and is covered up to the chin with the heated sand. In this situation he undergoes a most profuse sweat, which decreases regularly with the gradual cooling of the sand. The patient then rises and washes himself in the sea, or in a neighbouring river, and the process is repeated after the same manner till a cure is effected. The plant which they commonly use in the treatment of the venereal disease, is called by the Spaniards *governante*. The following are the characters of this plant, as far as I have been able to describe them from dried specimens.

Calix—Four ovate leaves of equal size with the corolla inserted under the fruit, deciduous.

Corolla—Polypetalous, four petals, small, entire, oval, inserted into the receptacle.

Stamina—Eight, inserted into the receptacle, of the same height with the corolla; carnosous filaments, canaliculated on one side, and convex on the other; alæ villous, antheræ simple.

Pistil—Germen oblong, villous, pentagonal, divided into five compartments, inclosing an oblong seed; the down of the pericarpium is very apparent, though very fine.

Stem.—I judged it to be a shrub of a moderate height;

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height;

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height; the stock is angular, bushy, knotted, and covered with a clammy varnish. The insertions of the lateral branches are alternate, and very near to each other. The leaves small, petiolated, bilobate, opposite, the upper end smooth, and the under side nervous, though not very apparently: flowers axillary, sometimes terminal, pedunculated, single, and sometimes double.

Independent of the maladies which the women share in common with the men, they are subject to several peculiar to their sex, particularly those which attend on child-birth, hæmorrhages from the uterus, or loss of blood, abortions, &c. It is remarkable, however, that they suffer very little inconvenience during the time of gestation, and are almost invariably delivered with ease. Difficult or unnatural labours are very rare, but when they take place, both the mother and the infant almost always become their victims. This can be occasioned only by a want of correspondence in the dimensions of the pelvis in the mother with the size of the infant, which must pass through it, or from the improper position of the latter when it presents itself before the passage.

In natural labours, the first pains ordinarily take place but a short time previous to the expulsion of the infant. These women, doubtless, are indebted for this advantage to the extreme width of the pelvis, as will appear from the table of proportions.

As soon as the infant is born, the old women who perform the office of mid-wives, tie the umbilical cord, plunge the child into cold water, and cleanse it from the viscid humour with which its body is covered. The moment the mother is delivered, she goes to bathe in the sea, or a neighbouring river. On coming out of the river, she is seated on a hot stone, and covered with furs. In this situation she remains only till the sweats she experiences subside, and the stone cools, to plunge herself again into cold water,

water, and sometimes repeats this process for several succeeding days.

These immersions in water, and this kind of stove, in general use among the Americans in almost all diseases, are often attended with inconvenience; and chiefly to women recently delivered. In that case they often occasion suppression of the lochia, inflammation of the genitals and of the urinary passage, accompanied with suppression of urine, or scirrhous breasts, which sometimes become cancerous. About six months ago a case of this kind happened at the mission of Monterey to a woman of about 25 years of age, who died of an ulcerated cancer, which had corroded one of the breasts and four ribs adjacent to the tumor.

Should any accident occur after this treatment, the midwives confine their care to fomenting the parts affected with a decoction of plants or seeds of an emollient nature. The seed which they commonly use in these cases, and in acute fevers, either as a draught, or a fomentation, resembles linseed. It has the same shape, colour, and gloss, yields in boiling a similar mucilage, and is called by the Americans *passelle*.

The time of gestation is not always so fortunate as to reach the ordinary term of nine months, and abortions are by no means rare. In that case the women observe the same conduct as if they had been delivered at the appointed time, unless an hæmorrhage occurs, in which case they are kept in bed, and the hypogastrium and pudendum fomented cold. I was not able to obtain an explanation of the method used by the midwives to extract the placenta.

Neither are infants at the breast exempt from all the infirmities to which that early stage of life is naturally liable, excepting rachitis, or rickets, of which I did not see a single instance. Like Europeans, however, they are subject to the pains of dentition,

chaps, convulsions, hooping cough, worms, cholic, diarrhœa, marasmus, strabismus, &c.

The time of suckling is unlimited. Sometimes it is very short, but mothers commonly retain their children at the breast for eighteen or twenty months. Their manner of swaddling their children consists in wrapping them in furs, having previously stretched out their arms and legs at full length, and fixed them in that situation by several bandages of leather. They then place the infant in a piece of bark proportioned to his size, and of the form of a hollow tile, to which he is fastened by straps or bandages of leather. As to the brown spots some navigators pretend to have observed on the backs of children, I confess that in this and many other particulars where I endeavoured to verify their observations, my enquiries were fruitless. I remarked nothing in their organization incompatible with the most perfect natural conformation.

Although the diseases with which the natives of California are afflicted are no less numerous than various, their treatment of each different malady is almost invariably the same. I have already said this treatment consists in the use of a few plants, in cold bathing, and in a kind of stove bath. The application of these remedies, however irrationally employed, is directed by a sort of physicians, or rather jugglers, who obtain the confidence of their countrymen only by feigned inspirations and extravagant gestures.

From their general practice of exciting sweats, it may be thought that, like Van Helmont, these jugglers imagine that secretion to be a favourite depuration of nature, and that any method of promoting it is sufficient to cure all diseases. But were it possible to suppose, like him, that this doctrine with its practice is derived from a superior being, as their gymnastics seem to indicate, it is probable these jugglers
were

were the first favoured with the revelation, while that physician was but their humble imitator. As to the regimen, it is always subordinate to the taste and appetite of the patient.

The external or chirurgical diseases to which these nations are subject, consist of fractures, wounds, ulcers, soft tumours, herniæ, and luxations.

Their treatment of wounds and ulcers differs not from their ordinary treatment. In simple cases they abandon their cure to nature. In those which are serious, they apply to the wound or ulcer a few plants, either entire or pounded. Should the ichorous discharge produced by the ulcers cause much pain, and inflame the parts, they bathe them with a lotion made with plants, or emollient seeds, and if a wound is attended with hæmorrhage, they staunch it with the hair of animals, and make a gradual compression, making use of pieces of leather, supported by straps, and thus produce the effect of our bandages.

If this application be not sufficient to stop the effusion of blood, the patient generally dies of the exhaustion which it occasions; but when the hæmorrhage is stopped, they wait till the hair inserted in the wound is thrown off by suppuration, and then proceed to complete the cure, as in simple disorders. The cicatrices they produce after a wound or other injury of the softer parts, are almost always defective.

If the natives of California poison their arrows like some tribes of America, the substance they employ produces less speedy and less dangerous effects; for the Spaniards, who have resided among them many years, have never yet found the wounds of these arrows mortal.

They take no care of simple tumours, but to such as have an inflammatory appearance they make use

of emollients applied either topically, or by way of fomentation.

Tumours formed by a displacing of the parts, such as hernia, are very common with these nations, particularly among infants.

They appeared to me ignorant of the method of returning the parts by the taxis, and of keeping them in their place when reduced by bandages. I reduced several tumours on children in presence of their parents, with the intention of making them fully acquainted with the operation, and enabling them in future to cure these diseases, or prevent the consequences attending them: but their want of intelligence leads me to doubt the success of my exertions. In the art of reducing laxations, their knowledge is equally confined. They make several extensions of the dislocated limb, but so ill directed as scarcely ever to effect a reduction. In the treatment of fractures, however, their conduct appears somewhat more skilful. They bring the ends of the bones into contact, and keep them fixed by a bandage, placing the limb in a cask of the bark of a tree, which is made to enclose it by straps of leather, and the patient lies at rest till the perfect union of the parts.

The proportions of these nations will be more easily compared by means of the following table, comprising the result of these researches, and indicating the places and latitudes where I measured them: it will there be seen that there is a great difference in the conformation of these various nations, which the climate, their sports, their manner of living, and even their prejudices either produce or modify in a very remarkable manner.

*Scale of Proportions of both Sexes, among the Natives
of the Continent of America, together with the La-
titude of the Places where the Measures were taken.*

<i>Names of the Places</i>	<i>- - - La Conception</i>	<i>Monterey</i>	<i>B. des Français</i>
<i>Latitudes</i>	<i>- - - 36° 41' S.</i>	<i>36° 41' N.</i>	<i>58° 38' N</i>
<i>Proportion of the Men.</i>	<i>Common</i>	<i>ft. in. lin</i>	<i>ft. in. lin</i>
<i>Stature</i>	5 1 0	5 2 6	5 3 0
<i>Largest diameter of the head</i>	0 8 4	0 9 0	0 9 5
<i>Shortest ditto</i>	0 5 0	0 5 4	0 5 6
<i>Length of the upper extremities</i>	2 1 6	2 1 9	2 2 3
<i>— of the lower ditto</i>	2 8 0	2 9 0	2 10 5
<i>— of the feet</i>	0 9 4	0 10 0	0 10 6
<i>Breadth of the chest</i>	1 0 0	1 1 0	1 1 4
<i>— of the shoulders</i>	1 4 8	1 7 9	1 7 5
<i>Length of the spine</i>	1 10 0	1 11 0	2 0 4
<i>Circumference of the pelvis</i>	2 4 4	2 6 8	2 7 5
<i>Proportion of the Women.</i>			
<i>Longest diameter of the head</i>	0 8 0	0 8 5	0 8 10
<i>Shortest ditto</i>	0 4 11	0 5 3	0 5 5
<i>Length of the upper extremities</i>	2 0 7	2 1 0	2 1 6
<i>— lower ditto</i>	2 5 2	2 6 0	2 6 8
<i>— of the feet</i>	0 8 0	0 8 6	0 8 9
<i>Breadth of the breast</i>	0 10 6	0 10 9	0 11 3
<i>— of the shoulders</i>	1 2 0	1 2 8	1 3 2
<i>Length of the spine</i>	1 8 0	1 8 6	1 8 9
<i>Circumference of the pelvis</i>	2 5 0	2 6 0	2 6 9
<i>Distance from one anterior and superior spine of the ilium to the other</i>	0 8 0	0 8 5	0 8 10

The above proportions were measured in the following manner. From the head of the humerus to the extremity of the middle finger, for the upper extremities; from the head of the os femoris to the heel, and thence to the end of the great toe for the lower extremities; the breadth of the chest from one superior articulation of the humerus to the other. The height of the vertebral column, or length of the spine, was taken from the first cervical vertebra to the os sacrum; the longest diameter of the head from the superior angle of the occiput to the symphysis of the chin; and the shortest diameter from one parietal prominence to the other.

MEMOIR ON CERTAIN INSECTS,

By M. La Martinière.

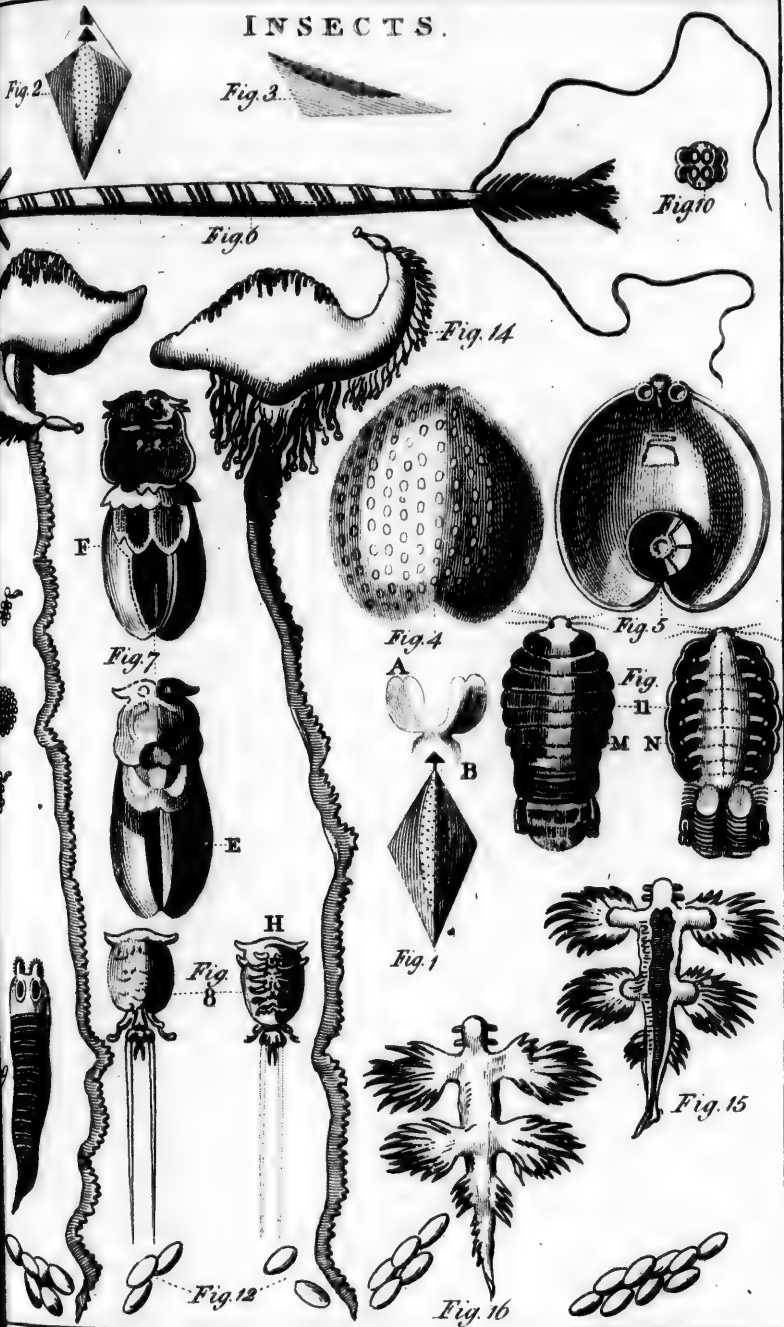
THE insect, of which the form may be seen through its nidus, (fig. 1,) is found in a small prismatic triangular cell, pointed at the two extremities, of the consistence and colour of a light and very fragile ice. The body of the insect is green, intermingled with small bluish spots, and a few of a gold colour, and is united by a ligament to the lower part of its nidus. Its neck supports a small blackish head, composed of three converging laminæ, in form of a hat, and enclosed between three fins, two of which are large, and notched at the upper part, A; and one small, in shape of a semi-circle, B. When irritated, it instantly withdraws all its fins and its head into its nidus, falling to the bottom by its own gravity. Figure 2, represents the prism, seen from below, and shewing in what manner it is notched to afford a passage for the insect to retire within it. Figure 3, is a representation of it in profile. The motion performed by the two large fins, which are of a cartilaginous substance, rather soft, may be compared to that made by the two hands, when joined horizontally, and then turned downwards, thus forming alternately two inclined planes, and one parallel with the horizon. By means of this motion, it supports itself on the water, where it procures nourishment, probably from the fat and oily bodies that swim on the surface of the sea. I caught it near Nootka, on the north-west coast of America, in calm weather.

The following insect, (fig. 4 and 5,) is shaped very nearly like the glass of a watch, indented in one point of its circumference. Its body is of a cartilaginous substance, of a dullish white, and its upper part (fig. 4,) covered with small oval spots of the colour
of

Fig. 2.



INSECTS.



Pub. June 20. 1795. by L. Stockdale.

Sanford sculp.

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of wine lees. Figure 5, represents it as seen from below, where may be perceived three elevations in form of cups, two near the proboscis of the insect, and a third, much larger, towards the indented part of its body. This last is divided by seven little whitish ribs, the center projecting a little. It is by means of these cups that it fixes itself very strongly on the back of various fish, or marine animals, which it probably effects by producing a vacuum, and not by means of any glutinous and cohesive humour, as might be supposed. Perhaps it is in the same way that the *lepas* or barnacle, and *patella* or limpet, adhere so tenaciously to the rocks. Its proboscis, situated between its two small superior cups, is set with points at the upper extremity, which are probably mouths, by which this animal sucks the blood of the fish on which it fastens. Below may be seen, through its substance, several convolutions of intestines, ending in a small receptacle of nearly a square form. Though this animal is without legs, it has a progressive motion, by means of its three protuberant cups, which it fixes alternately. It is also enabled to descend to the bottom of the water, though its form appears to prevent it, and the following is the method it takes. It rolls itself up as it were *en papillote*, retains that state by fixing its two superior cups to the posterior and upper part of its body, and thus presenting a smaller surface to the water, descends by its own gravity. I found it adhering to a fish of the genus *diodon*, or sun-fish, of Linnæus, which we met with very frequently from Nootka to Monterey, in California.

The species of *pennatula**, (fig. 6,) appeared to possess characters which have not yet been noticed, and therefore I have given a figure of it. The body is of a cartilaginous substance and cylindric

* It is rather a *Lernæa*.

form ;

form ; its head, which is armed with two small horns of the same substance, is of a spherical figure, flattened at the anterior extremity. This part is covered with papillæ, part of which may be seen. They are so many mouths, by which the animal drinks the blood of fish, burying itself as far as possible in their flesh. The extremity of its body, which always remains out of the fish, appears like the feathers of a quill. These feathers are of the same substance with the body, and serve, I am well convinced, as excretory ducts ; on lightly pressing the animal, the greater part of these cartilaginous feathers ejected a very limpid liquor in small threads. At the base of these feathers, and under the body, are placed two large cartilaginous filaments, of which I could not possibly discover the use. They are not always furnished with these, for I have seen some of these animals without them.

The circulation of the blood is easily perceivable, and a minute is sufficient for a complete revolution. I have endeavoured to represent its undulations, by a few strokes of the pencil, which may be seen in the length of the animated cylinder. Probably this animal can introduce itself into the bodies of fish only when it is very young ; when once inclosed, having abundance of food, its head encreases considerably, and the two horns with which it is furnished, necessarily form an obstacle to its escape. An admirable provision of nature, since she has designed it to obtain nourishment at the expence of another. I found it buried more than an inch and half deep in the body of a diodon, taken in the vicinity of Nootka.

Figure 7, represents an insect of a species very nearly resembling the *oniscus* ; letter C is the upper view of it, and T that of the under side.

Its body is crustaceous, and of a dirty white colour, having round reddish spots on the anterior part of its corset, two others much larger in form of a crescent,

crefcant, on its clytra, or upper wings, and its *scutellum* is of the fame colour. The under part of the breaft is furnifhed with four pair of legs. The firft and third pair terminate in a very fharp fang; the fecond, from their form, are apparently employed in fwimming; and the fourth, which are very fmall, confift of two membranous threads. Some laminae alfo, of a membranous nature, and much indented, may alfo ferve the purpofe of legs; the two inferior are the largeft. Its belly is filled with a bundle of intefines, of a vermicular form, the fize of a hair; and the mouth, placed between the firft and fecond pair of legs, represents a fmall trumpet, fituated between the two lips, joined at the upper part only. I found this infect adhering to the gills of a diodon, which was alfo fuffering from the two infects mentioned above.

Figure 8, represents an infect of the genus *oniscus*, according to Linnæus, and its body has very nearly the form, confiftence, and colour of a woodlouse, except that it is not like the latter divided by fegments. It is provided with a double tail, three times the length of its body, from the infertion of which arife two legs, which the animal employs principally for fwimming, when lying on its back. The infect feen from below, letter H, presents fix pair of legs, the two firft of which terminate in very fharp and ftrong points, the third ferves it for fwimming and balancing its body in concert with thofe inferted into the root of the tail, and the fourth pair, which are the largeft, is furnifhed with two very fharp points, which it fixes with all its force into the body of whatever animal it faftens on. The two laft are a fpecies of membrane, in various divifions. Between the two firft pair of legs is its probofcis, being of a foft confiftence, and half a line in length. At the bafe of the third pair are two points, of the fubftance of horn, very hard, and adhering firmly; the two lower horns, below the large pair of legs, are alfo very

very strongly fixed to its body. I imagine it is by the aid of these kind of darts that it pierces the bodies of the fish upon which it is found, and then changing its place, introduces its proboscis into the hole they have made. Placed in a vessel, it descends to the bottom, and returns to the surface with the greatest facility, which it performs by presenting the edge of its body, and describing several curves. Its two large tails are detached from it very easily without the animal appearing to suffer pain. I found this insect in great numbers, adhering to the body of the same diodon *.

Figure 9, represents a species of leech, of the natural size. It is of a whitish colour, and composed of several rings, similar to those of the *tenia*. The upper part of the head is armed with four papillæ, set with points, which are so many instruments for procuring nourishment. Under each papilla, on either side, is a small pouch, elongated in the form of a cup. Figure 10, is a front view of it, where its four papillæ may be distinguished. I found this leech buried in the exterior substance of a shark's liver, more than half an inch within it. Whence it came, I am perfectly ignorant †.

Figure 11, represents the *oniscus physodes*, of Linnæus, which he has very well described, and of which I have given a drawing, merely because I believe none has hitherto existed. It has nine vesicles on each side, placed like tiles, on the inferior surface of a round tail, P.

I found this species of *oniscus* in the gills of a new species of the *pleuronectes* of Linnæus ‡, very abun-

* This insect appears rather to be a *monoculus* than an *oniscus*, the shell being of one piece.

† This animal agrees in its instrumenta cibaria, or feeders, with that to which Gog attributes the cause of scurf in swine. Both species are nearly allied to the genus *bivudo*, or leech, of which the characters given by Linnæus require correction.

‡ To this genus belong the holibut, plaice, flounder, dab, sole, and turbot.—*Translator's note.*

dant at Monterey, in California. Letter M is its upper side, and letter N the under side, where the 14 feet are visible.

Of all the insects I have delineated, the following (figure 12) is the most simple, and that of which the study has afforded me the greatest pleasure. They are mere oval bodies, perfectly resembling a bubble of soap, as may be seen in my drawing, where they are arranged in clusters of 3, 5, 6 and 9, and some alone and wandering. These collections of globules placed in a glass of sea water, rapidly described a circle round the glass by a common motion, in which each vesicle participated with a simple compression of the sides of its body; an effect probably, of the reaction of the air with which they were filled. It is, however, inconceivable how these animals, which are perfectly distinct from each other, since they may be separated as I have experienced, without any apparent derangement of their economy, can communicate their intentions so exactly, and concur together in one common motion. From these considerations, added to the form of the animal, I recalled to mind with pleasure and satisfaction the system of M. Buffon, and almost wished to persuade myself, I was about to witness the most wonderful phenomenon of nature, supposing that these animated particles, then occupied in encreasing or diminishing their numbers, or in making farther revolutions in my glass, would speedily assume the form of a new animal, of which they were the living materials. My impatience led me to separate two from the most numerous cluster, imagining this number would prove most favourable to a metamorphosis, but I did not succeed any better by this means. The following is the manner in which these two molecules proceeded, when separated for my second experiment. I only speak of these two, because I observed them with more attention than the others. Imagine to yourself two wrestlers, equal-

ly

ly strong and skilful, each equally ambitious of conquest; for such were the two molecules which I had just separated from the rest. Their first meeting is evidently a combat, in which the contest is which shall be most successful in seizing its companion, and flying to fulfil the duty of its nature. They attack each other on all sides; sometimes one plunges below and the other ascends to the top of the water; this describes a circle that remains in the centre, watching the most favourable moment. The different artifices of each are foreseen and parried by the other. Their courage, however, encreasing, their motions become so rapid, that it is impossible to avoid confounding the one with the other. Though my design was particularly to observe the conqueror, at length fatigued with watching them, I left them both in the fury of the combat. On returning to examine them again, I found them united together as usual, and swimming about in my glass by a common movement in the most amicable manner. The pleasure these molecules afforded me was so great, that I shall often recall them with satisfaction to my recollection.

Natural history, often a very dry study, would not I think have so many attractions for those who devote themselves to it, were they not sometimes fortunate in meeting with objects like these, to delight their imagination.

The species of Medusa, (if it does not constitute a new genus,) which is represented in two different attitudes, figures 13 and 14, has nearly the figure of a *cornemuse* or bagpipe, and is nothing else than a vesicle perfectly white and transparent, furnished with several blue tentacula, yellowish at their extremity. Its large tail which is also blue, appears to be formed of an assemblage of small glandular kernels, flattened and united together throughout their length, by a gelatinous membrane. The upper part of this vesicle has a kind of seam, composed of large, middling, and
small

small points, arranged alternately. To the longer part of the *cornemuse*, which may be considered as its head, is added an insulated tentaculum, its external is furnished with 25 or 26 tantacula, much smaller than those seen at the insertion of its large tail, the number of which sometimes amounts to 30. By means of these last, of which it is able to encrease the diameter at will, by inflating them with a part of the air contained in the animal, it fastened itself to the side of the vessel, so that the extremity of some of these tentacula, by their distention, might occupy a surface of two or three lines. The most flexible part of the *cornemuse* is its elongated division or head, and by means of that it performs various motions, and assumes different positions: but this change cannot be produced without obliterating as it were, the fitches of the future on the upper part of the body, which sometimes entirely disappear, and it then represents only a wrinkled line.

The round part seen at P, is situated in the midst of the large tentacula, fixed very firmly to the body of the *cornemuse*, near its tail, and is nothing more than a collection of small gelatinous globules; from their center rise other globules somewhat larger, having a small peduncle, near the middle of which, are attached a little bluish body in shape of an S, of which I have given two representations as viewed through a lens. See R, but I am absolutely unable to discover their use.

I found this *cornemuse* on the 18th of November, 1786, in 20° N. lat. and 179° E. long. from Paris; and I met with it again, in very great abundance, at our landing place on the Bashee or Bachi Islands, where I also found the following animal:

This animal (fig. 15), which is truly of a singular form, nearly resembles a lizard. Its body, which is of a glutinous substance, but rather firm, presents two brilliant colours; deep blue and the vivid white,
like

like silver. Its head is furnished with two small gelatinous horns on each side; the two posterior ones situated more internally than the two anterior. Its body is provided with four feet, which spread like a fan, and some appendages near the insertion of its tail. It terminates like that of a lizard. The upper part of its back is divided throughout its whole length by a blue stripe, the rest of the body appearing of a very fine silver colour, as well as the center of its feet and its internal part. This animal, possessing little vivacity, remains at rest on the water, as it appears in the drawing, but when irritated by the touch, it withdraws its head a little into its body, which it moves backward, and bending in the middle of its reins, turns on its back. This position was its constant defence, when I attempted to irritate it. When desirous of regaining its former attitude, it employs nearly the same means, and throwing its head forward, and bending the center of its body, returns to its former posture, which is doubtless the most natural to it. Figure 16 is a representation of it reversed.

I caught it during a gentle sea, at the landing place on the Bachi Island.

DISSERTATION ON THE INHABITANTS OF THE ISLAND
OF TCHOKA AND THE EASTERN TARTARS.

By M. Rollin, Surgeon-Major of the Bouffole Frigate.

On the 12th of July, 1787, we anchored in *Baie de Langle*, situated in the western part of the Island of Tchoka, or Segalien.

The next day we landed, and were no sooner on shore than the inhabitants came to meet us, and were eager to shew us marks of kindness, from which we formed a good opinion of their intentions.

This

This nation is very intelligent, respect property, entertain no mistrust, and are very communicative with strangers. They are of a middling stature, squat, strongly built, a little *embonpoint*, and their figure and muscles strongly marked. The stature most common among them is five feet, and the tallest five feet four inches, though of the latter we saw very few instances. All of them have large heads, and their faces are broad, and rounder than those of Europeans. Their countenance is animated and very agreeable, though the assemblage of the parts which compose the face has not, in general, that regularity and grace which we admire. Almost all have large cheeks, a short nose, rounded at the end, and the nostrils very thick, sharp eyes, of a middling size and well formed, in some instances blue, but generally black; thick eye-brows, a mouth of a middling size, a strong voice, and thick lips, of a dark hue. Some individuals were observed to have the upper lip tattooed in blue, and these parts, as well as the eyes, are capable of expressing every kind of sentiment. They have fine teeth, well set, and of the usual number; a round chin, with very little prominence; and small ears, which they pierce, wearing in them ornaments of glass, or rings of silver.

The women are smaller than the men, and have a rounder and more delicate figure, though there is little difference in their features. Their upper lip is completely tattooed in blue, and they wear their hair of its full length. Their clothing is in no respect different from that of the men, and in both sexes the colour of the skin is tawny; and that of their nails, which they suffer to grow long, of a darker shade than in Europeans. These islanders are very full bearded and hairy. Their beard being very long and bristly, gives to the old men a grave and venerable appearance, and the young appeared to look

up to them with great attention and respect. Their hair is black, smooth, and moderately strong, though in some it is chestnut. They all wear it round, about six inches long behind, and cut in a brush on the forehead and temples.

Their dress consists of a cassock, or kind of bedgown, which crosses before, where it is fastened with small buttons, strings, and a girdle above the hips. This cassock is made of skin, or a kind of quilted nankeen, made with the bark of the willow; it generally descends as far as the calf of the leg, and sometimes lower, which makes them, for the most part, dispense with the use of drawers. Some wear buskins of seal's skin, the feet of which nearly resemble those of the Chinese, both in fashion and workmanship; but the majority have both the head and foot naked; and only a small number had their heads bound with a *bandeau* of bear skin, which served rather for ornament than protection against the cold or the rays of the sun.

Like the inferior cast of the Chinese, they all wear a girdle, to which they suspend their knife, a boar's tusk, and several little pouches, in which they put their flint, steel, their pipe, and the box containing their tobacco, the use of which is very general.

Their huts afford them shelter from the rain and wind, but are not sufficiently large, considering the number of inhabitants. The roof forms two inclined planes, about ten or twelve feet high at their point of junction, three or four feet on the sides, and fourteen or fifteen broad by eighteen long. These cabins are constructed of rafters, firmly connected together, and flanked with the bark of trees and dried plants, disposed in the same manner as the straw thatch of the cottages of our peasants.

We remarked within these houses a square heap of earth, elevated about six inches above the ground, and

and supported by small thick planks on the sides. This is their fire-place. At the sides and at the end of the apartment we saw tressels, twelve or fifteen inches high, on which their mats are extended to sleep on.

The utensils they employ in preparing and eating their food, consist of iron cauldrons, porringers, or vessels of wood, and of birch-bark, of different shapes and various workmanship, and they eat with small sticks, like the Chinese. The hours of repast, in each family, are at noon, and towards the close of the day.

In the southern part of the island their habitations are constructed with rather more care, are better decorated, and the greater part floored. We saw among them some vessels of Japan porcelain, which, as they appeared to set great value on them, I believe they are procured with difficulty, and at considerable expence. They employ no cultivation, and live on fish smoked, and dried in the air, and a small quantity of game, produced by the chase.

Each family has its canoe and its implements for fishing and hunting. Their arms are the bow, the javelin, and a sort of spontoon or half pike, which they use chiefly in hunting the bear. By the side of their huts are store-houses, in which, during the summer, they collect and prepare their provision for the winter. This consists of dried fish, a considerable quantity of garlick and wild celery, angelica, a bulbous root which they call *apé*, known under the name of the yellow lily of Kamtschatka, and the oil of fish, which they preserve in the stomachs of the larger animals. These store-houses are built of planks, well united, raised above the ground, and supported by several stakes of about four feet high.

Dogs are the only domestic animals we saw among the inhabitants of Tchoka. They are of middle size,

have rather long hair, straight ears, long muzzle, a strong cry, and are not in the least savage.

Of all the uncivilized nations we have visited, these islanders, if they may be classed among that number, are the only people among whom we observed any weavers' looms. These looms were complete, yet small enough to be portable.

They use a distaff to spin the hair of animals, the bark of the willow and the great nettle, of which they form their stuffs.

This nation are of a very mild and unsuspicious character, and appear to have some commercial dealings with the Chinese through the medium of the Mantchou Tartars, with the Russians by the north part of their island, and with the Japanese by the south; but the articles of their traffick are of little importance, consisting only of a few furs and some whale oil. Their whale fishery is confined to the southern part of the island, and the manner in which they extract the oil is far from economical. They draw the whale upon the beach, which lies on a declivity, and leaving it to putrefy, the oil thus separated of itself is received in a kind of tub placed at the steepest part of the ground, to which it is directed in its course by little furrows.

The island of Tcheka, so denominated by its inhabitants, but called by the Japanese *Oku-Jesso*, and by the Russians, who are only acquainted with its northern part, the island of *Segalien*, extends in its longest diameter over all the space comprised between the 46th and 50th parallel.

It is very woody and very high in the middle, but flat towards its extremities, where it appears to offer a soil favourable to agriculture. Vegetation is there extremely vigorous, and its forests stocked with willows, oaks, and birch. The sea that washes its shores is extremely well supplied with fish, as are its rivers and streams.

The

The season when we landed on this island was extremely foggy, but sufficiently temperate, and all the inhabitants appeared to enjoy a robust and healthy complexion, which they retain to a very advanced age; nor did I see among them any defective conformation, or any trace of contagious eruptions, or any other disease.

After having communicated several times with the inhabitants of the island of Tchoka, which is separated from the coast of Tartary by a strait we supposed to stretch from the sea of Japan to that of Okotsk, we continued to shape our course to the northward. But the depth of water in the channel having gradually and uniformly shoaled throughout its width to six fathoms water, M. de la Pérouse judged proper, for the safety of the ships, to run back to the southward, considering that the impossibility of arriving at Kamtschatka, by sailing out to the northward, as almost demonstrated. But the continuance of the fogs and south winds, which prevailed almost incessantly during four months we had kept the sea, rendered our situation very critical, and made that attempt as long and tedious as it was painful and difficult.

The wood and water we had taken in at Manilla being consumed, our Commodore determined to procure a fresh supply of those articles before he attempted any thing further.

On the 27th of July 1787, the weather clearing up, we were enabled to reconnoitre a vast bay, in which we cast anchor. It offered us not only a safe anchorage against bad weather, but every means of providing the necessary articles we wanted for continuing our voyage. This bay is situated on the coast of Tartary, in $51^{\circ} 29'$ N. lat. and $139^{\circ} 41'$ longitude, and was named *Baie de Castries*, or Castries Bay.

The country is very mountainous, and so much covered with wood, that the whole coast appears but

as one forest, and the vegetation is very strong and flourishing.

The inhabitants, the only people we met with on this coast from Corea, were settled at the head of this bay, towards the mouth of a small river well supplied with fish.

This people are gentle, affable, and, like those of the island of Tchoka, are not mistrustful of strangers. They pay the most scrupulous respect to property, and shew little curiosity or desire even for things which to them might be of the greatest utility.

In salutation they bend the body forward, and when they desire to shew extraordinary marks of respect, fall upon their knees, and incline their head so as nearly to touch the ground with their forehead.

The exterior characteristics of this people are irregular, and offer but little analogy to those of their neighbours of Tchoka, who are separated from them by a strait at this part only ten or twelve leagues wide.

These Tartars are of a lower stature, weaker body, and their countenance much less agreeable or regular; their colour is not so dark, and their skin is tolerably white in those parts which are constantly covered. Their hair is not so thick, and they have only a little beard on the chin and upper lip, while the inhabitants of Tchoka, as I have said before, are square made, their muscles strongly marked, and their bodies furnished with more hair and beard than Europeans. These differences in the natural conformation of these nations seem to prove them of a different race, though they live under the same climate, and their customs and mode of living are the same, or very nearly so.

The women are ugly, their countenances not having that character of sweetness by which they are commonly distinguished from men. Their faces are flat, their eyes round and small, their cheeks large and high, their head large, their throat firm and tolerably

terably well turned, and the extremities of the body small but in fine proportion.

The common height of the men is from four feet* nine to ten inches. Their head is very large, with respect to their bodies, their face flat and almost square, their forehead small, round, and a little depressed from front to back; their eyebrows indistinctly marked black or chestnut like their hair; their eyes small, and even with their head; their eye-lids so ill divided that the corners are stretched when opened; their nose short and hardly perceptible at the root, so little is it defined at that part, and their cheeks are coarse and wide. Their mouth large, and their lips thick, and of a dull red; their teeth small and regular, but very liable to decay; their chin projects but little; the branches of their lower jaw are rather narrow; their extremities small, and the muscles but faintly marked. The irregular outline of every part of the body excludes all grace of form and delicacy of feature; and they are the most puny, ugly race of men I have seen in either hemisphere.

Though these Tartars, as well as the inhabitants of Tchoka, have attained a considerable degree of civilization and politeness, yet they have no agriculture, and live in extreme filthiness. They support themselves chiefly during the summer on fresh fish, and in winter on fish either smoked or dried in the air on horses nearly resembling those of our laundresses. Of these fish they first cut off the head, then gut them, take out the bones, and suspend them on the horse. When dry they collect them in heaps, and preserve them in store-houses, like those in the island of Tchoka.

* The Paris foot, used in all the measures throughout this work, is equal to 1.0654 of the English foot, or contains 12.783 English inches, somewhat less than 12 inches, and eight tenths. The stature of the people here described is therefore about five feet, one or two inches English measure.

They catch fish with the hook, or the net, or spear them with a kind of spoutoon or stick, shod with iron.

They make regularly two meals in common, one about the middle of the day, and the other towards sunset: their utensils and manner of preparing their food are the same with those of the inhabitants of Tchoka, and they procure these articles, with several others, from the Mantchou Tartars, or Japan.

We were particularly astonished at the avidity with which they ate the skin and cartilaginous part of fresh fish entirely raw, especially the muzzle and parts adjoining the gills; these with train oil they esteem a great delicacy, and prefer to every other food.

Both men and women are dressed in a frock resembling that of our carters, or a kind of dressing gown descending to the calf of the leg, and fastened before with copper buttons. This garment differs not from that of the inhabitants of Tchoka, and is made of fish-skin, or sometimes of nankeen for summer, and for the winter, of the skin of land animals. The women ornament the lower part of this kind of robe with small plates of copper, ranged in symmetrical order. All wear alike a sort of drawers or breeches like that of the Chinese, small buskins similar to those of the inhabitants of Tchoka, a ring of horn or metal on the thumb, and trinkets hanging at the ears and nostrils.

I did not observe among them any chiefs except those belonging to each family. The only domestic animals they bring up are dogs, of the same species as those of Tchoka, which they use likewise in winter for drawing their sledges.

The custom of offering their wives to strangers, which exists among some inhabitants of the globe, is not adopted by this nation, and the men appear to hold them in the greatest respect. The occupation of the women is apparently confined to domestic concerns,

cerns, and the education of their children, and preparation of their food, constitute the principal objects of their attention.

The umbilical cord is tied as with us at the moment of the infant's birth, who undergoes a kind of swaddling, similar to that used by the Americans. At the times of repose the women place them in a basket, or cradle, made of wood or the bark of birch.

The severity of the climate in which these Tartars live obliges them to have different houses for their winter and summer residence, the form and internal distribution of which are the same as those I have described in my account of Tchoka: their winter houses have no other peculiarity than that of being sunk into the earth about four feet, and having a sort of porch or corridor adjoining the entrance. Notwithstanding their hard and severe manner of living, these Tartars appeared to enjoy pretty good health in their youth, though as they advance in age they become subject to inflammations of the tunica conjunctiva, which are very common among them, and to blindness. The frequent occurrence of these infirmities is, probably, attributable to general causes; such as, in my opinion, the glare of the snow, which covers the surface of the land for more than half the year, and the continual irritation of the organs of vision produced by the smoke, which constantly fills their cabins where they are mostly confined in winter to avoid the cold, and in summer to escape from the *mosquitoes*, which in these latitudes are extremely numerous.

Cutaneous disorders are very rare among these people, notwithstanding they live in the extreme of uncleanness. I saw only two or three slight cases of herpetic eruptions, and one infant about six years of age, who had a scald head, but I did not remark any defect of conformation, or any trace either of the small-pox or syphilis.

The

The occupations of both sexes, their implements of fishing and hunting, and their canoes, have no remarkable difference from those of the inhabitants of Tchoka; but their natural constitution must render them incapable of supporting equal fatigue with the latter, who are much more robust.

The people appear to have the greatest veneration for the dead, and employ all their ingenuity to do honour to their sepulture. They are interred in their usual habiliments, and with the arms and implements they used in their life time. The body is deposited in a coffin, made of planks, in the same form as ours, the extremities of which are ornamented with pieces of silk, either plain or embroidered in gold or silver. This coffin is afterwards enclosed in a tomb, constructed of planks or boards, elevated about four feet from the ground.

Comparative Table of the Proportions of the Inhabitants of the Island of Tchoka, and the Tartars of Castris Bay, taken in the same manner as the comparative Proportions of the Americans, before specified.

	Island of Tchoka.			Tartars of Castris Bay.		
	Ft.	In.	Li.	Ft.	In.	Li.
Common stature of the men -	5	0	0	4	10	0
Circumference of the head -	1	10	4	1	9	0
Its longest diameter -	0	9	8	0	9	0
Shortest ditto -	0	5	8	0	5	4
Length of the upper extremities -	2	1	6	2	1	0
the lower ditto -	2	8	0	2	6	0
the feet -	0	9	5	0	9	0
Circumference of ditto -	3	2	0	0	0	0
Its width -	1	1	4	0	11	0
That of the shoulders -	1	8	0	1	3	0
Circumference of the pelvis -	2	6	0	2	3	0
Height of the vertebral column -	1	11	0	1	10	0
The only measure I could obtain of the women, is the circumference of the pelvis -	0	0	0	2	2	10

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OBSERVATIONS

Of M. de Monmeron, Captain of the Corps of Engineers, sent in quality of Chief Engineer, in the Expedition of M. de la Pérouse.

ISLAND OF TRINIDAD.

At Sea, the 17th of October, 1785.

THE Island of Trinidad, situated in the southern hemisphere, about 180 leagues from the coast of Brasil, continued uninhabited till the English, during the last war, occupied it, with an intention, no doubt, to facilitate the capture of French, Spanish, and Dutch prizes; but we were assured that, at the return of peace, they abandoned it. M. de la Pérouse was desirous of ascertaining the fact. When we got sight of this island, we presently perceived the Portuguese flag on a little hill, at the head of a small bay, in the south-east part of the island.

M. de la Pérouse having hoisted out a boat, ordered me to go with it, and observe some particulars regarding this post; but the officer who had the command of this expedition, was ordered not to land, unless it could be performed without risk. We approached near the shore, and though unable to land, had an opportunity of examining this settlement at a very small distance. It is situated about one-third up a little hill, facing a flat beach of sand, which forms a creek in the south-eastern part of the island. This little bight is terminated to the westward, by two hills of bare rocks, which, like the whole island, are of a volcanic origin; and to the eastward, by a sugar-loaf hill, with a broad base, and about 300 feet high, adjoining to a kind of table hill, the base of which is larger, while the height appears

appears less by one-third than that of the sugar-loaf. The sand beach seems to be from 45 to 60 fathoms deep, and the land then rises into a very regular and steep, though natural, glacis. Above this glacis is a kind of platform, which, in fortification, I should call *terre-plein*, very much inclined on the side towards the sea, on account of which it is impossible to shelter it from the fire of ships at the anchorage. I could not perceive any parapet, though it is to be presumed there was one, à *barbette*; and though I made every endeavour to discover the traces of cannon or batteries, I saw nothing which had any resemblance to them. On the platform are five or six huts, resembling those of the negroes in the sugar islands, and one larger than the rest, towards the salient angle of the *terre-plein*. This fortification, if it may be called one, resembles a *redent*, one side of which is parallel to the beach, and the other to a ravine, near which the glacis in this part terminates.

Such an establishment resembles rather a den of banditti, than a post occupied by a civilized nation. Excepting the natural obstacles, which render a landing on this island difficult and dangerous, there is no trace to be perceived of any works capable of resisting even a first attack; and I may confidently venture to assert, they have not a single vessel of force. This leads me to think, that either the Portuguese have not been long settled here, or that they pay little attention to their settlement*.

M. de Vaujuas, who landed on this island, informed M. de la Pérouse that he estimated the inhabitants at 200 persons. For my own part, I examined their numbers very carefully, and several times counted

* As the strength of a post is estimated not only from its situation, but also by the number of its defenders, I asked the Governor of St. Catharine how many troops the Queen of Portugal maintained at Trinidad? He said he believed that post might be occupied by a detachment of 35 or 40 men.

those who presented themselves to our view, but could never find more than 33 men dispersed along the strand, or on the declivity of the hill, and about 36 who were looking at us from the platform, so that we may imagine, our appearance could not have excited the curiosity of all the individuals who are thus exiled upon this barren rock. They reported to M. Vaujuas, that provisions were sent them every six months from Rio Janeiro, and the garrison relieved every year.

As I believe the bottom of this bay is of rock, it would perhaps be difficult to moor ships here in order to force this port into an immediate surrender; but if the disposition of its defence is not altered, rather than come to moorings in the bay of the settlement, I should advise anchoring in the south-west part of the island, where the anchorage must be safer, which probably would make it easy to turn the port, which is on the bay to the south-east, by gaining possession of the top of the mountain, at the foot of which is the platform, inclined towards the sea, already described.

(Signed) MONNERON.

On board the *Bouffole*, 25th October, 1785.

ISLAND OF ST. CATHARINE.

At the Anchorage, from the 6th to the 19th of November, 1785.

THE island of St. Catharine, situated on the coast of Brazil, in $27^{\circ} 21'$ S. lat. is a Portuguese establishment which, for 70 years, has been very rarely visited by any European ships except those belonging to that nation. There are, therefore, few documents

ments concerning it to be expected from the accounts of travellers. And if the compiler of *Anson's Voyage* found a great difference both in the natural and political situation of that colony, compared with its former state in the time of Frezier, we may make a similar remark with regard to it at present, as compared with its situation in the time of Anson; since it has been considerably increased, if I am well informed, by the introduction of a great number of families from the Azores, at the expence of the Portuguese government, during the years 1752, 1753 and 1754. The population being thus suddenly augmented, must have given a new face to the establishment; and as these new colonists were diligent, laborious and skilled in agriculture, the progress of the population must be encreased, in proportion to these particular qualities of the inhabitants, and the fertility of the soil. The government here, as in all the Portuguese colonies, is purely military.

We are ignorant what force the government keeps in this colony during war; but judging from the accounts when the place was taken by the Spaniards, it will appear to be considerable. Yet these troops made so miserable a defence, that it would have been more to the honour of the Portuguese nation, had they been much less numerous.

Should an enterprize be formed against this part of Brazil, there is no doubt, that in the archives of Spain, the particulars may be found of the number of the forts, the absolute strength of each, and the mutual succours they afford.

Besides that, the Portuguese are not considered to be very skilful in the art of connecting positions to one another. I am well convinced from all I have seen, that the strength of connection between the different posts is almost nothing. It is therefore to be supposed, that the colony is so much the weaker as its forts are more numerous: I remarked only three
which

which could deserve that appellation; and these, although within sight of each other, seem formed one to be carried with the first attack, and the others to remain idle spectators of the disaster, and immediately surrender. The rules of fortification therefore demand, that these forts should be reduced to one, and the expence of keeping the other two, which should be abandoned and even demolished, should be employed to augment the third, while the three garrisons should be formed into one. If instead of three forts there were a dozen, it may be easily judged, what ineffectual resistance this colony must make, unless to improper a system of defence should be entirely abandoned*.

The road, which is open only to the north-east winds, is sheltered to the east by the island of St. Catharine, and on the west by the continent; on the south by the land both of the island and the continent, which approach so near, that they leave between them only a strait of less than three hundred toises wide. Its entrance cannot in any manner be shut against ships of war of any rate or construction whatever.

The landing is in general easy throughout the circumference of the road. The greatest difficulty to be apprehended is from a strong current, but the sole inconvenience even that could occasion, would be a delay in the disembarkation, and not unfrequently it might even advance it.

This road is so extensive, that although the forts are mounted with guns of a great caliber, ships may

* To have an exact knowledge of these three forts, independent of their names, it may be remarked that they form nearly an equilateral triangle, the base of which is to the northward, and the top towards the south. That of the east stands on the north-east point of St. Catharine, about a quarter of a league from the Perroquet Island; that to the west, which is the most considerable, is on an islet near the continent of America, and the third is upon the largest of the two little islands, called *los Ratones*.

anchor

anchor there very commodiously and securely, out of the reach of these guns.

The principal fort, which however is, in fact, only a large enclosed battery, is situated in a little island, of a moderate elevation, above the level of the sea, situated at about 350 toises from the *terra firma*, and opposite a *rideau*, much higher than itself. At about one third of the height of this *rideau* an enemy would command the fort, so as to observe every thing that passes there, and see from head to foot those who serve the guns. From this place, I am persuaded, the fort might be annoyed with a fire of musquetry; but a single mortar, or two howitzers, which might easily be fixed upon this hill, would be sufficient to force it to surrender. Indeed this fort is by no means capable of making a regular defence: there are no bomb-proof lodgments, for want of which, its situation on an island is so disadvantageous, that although the besieged were three to one against their invaders, it would not be difficult to reduce it to surrender at discretion; and to complete the misery of their situation, they are placed under a height, which, though it commands them, they cannot possibly occupy.

Yet this fort is the post of honour, where the general officer, who commands the whole settlement, would fix his quarters; for in time of peace he resides at *Nossa Senhora del Destero*, a town which is absolutely open, and only defended by a small battery, à *barbette*, on the island of St. Catharine, and on the easternmost point of the little strait above mentioned, behind which the town is built. The garrison of the principal fort was then composed of fifty men, badly clothed and ill paid, under the command of a captain.

The Portuguese officer, who commanded when the Spaniards took St. Catharine's, some years ago, was not made prisoner in the fort; but, as his defence was any thing but honourable, he was summoned before

fore a court martial. Had he been shut up in his fort, however, I do not imagine the affairs of the Portuguese would have taken a better turn; for this fort not being very capacious, he could only have been accompanied by a very small part of his forces, and would probably have been compelled to capitulate the first or second day of the attack, and to include, in the articles of capitulation, all the troops under his command, who would doubtless have readily acceded to the surrender.

The Portuguese, however, had no other alternative, than either to defend their forts, which, we have seen, was impossible, or to take the field.

I am not sufficiently acquainted either with the country, or the respective forces of the two powers, to judge whether the latter would have been a much more advantageous step; but I am inclined to think, that considering the contempt entertained by the Spaniards for the Portuguese, the colonists would have beheld their plantations ruined by their enemies, and their provisions consumed and dissipated by their countrymen. Scarcely any lands but those near the sea shore are cultivated, and these could afford but a poor resource for the subsistence of two contending armies, particularly when we consider how eager soldiers commonly are for pillage.

France ought, on no account, to make war on this part of the Portuguese settlements, unless with the intention of forming an establishment there for herself, and with the hope of retaining, under a treaty of peace, the territory she may conquer. Nor could that acquisition fail to excite the jealousy of the Spaniards, who would ever choose their old enemies, the Portuguese, for neighbours, in preference to their best friends and most faithful allies.

Consequently all hostilities, on the part of France, would be confined to a *coup de main*, which ought to be undertaken by cruisers, who might direct

their attack against the settlements of the whale fishery, particularly should they be informed that the Portuguese are not more on their guard than in time of peace. I would not, however, engage that the prizes would defray the expence of the expedition, unless the establishment should be ransomed, or the government should grant an indemnification for the destruction of the ships and warehouses which belong to the revenue, since the present government farms out the exclusive privilege of the whale fishery.

This establishment is at the head of a creek called *Bom-Porto*, which constitutes part of the great roadstead, and ships may anchor there sheltered from every wind.

(Signed) MONNERON.

On board of the *Bouffole*, 15th December, 1785.

CHILI.

At the Anchorage of Talcahuana, in the Road of La Concepcion, from the 14th of February to the 17th of March, 1786.

ALTHOUGH the family compact between the crowns of France and Spain seems to render all military reflections useless, which our stay at Chili enabled us to make on the political state of this part of the Spanish dominions, yet as this domain may possibly fall into decay or total ruin, a time may arrive when the following remarks, now regarded as of no utility, may acquire considerable importance:

I propose in this place not so much to consider the virtues and defects of the Spanish government in these colonies, as to shew the strength or weakness they produce. The kingdom of Chili, in South America,

America, is bounded on the west by the South Sea ; on the east by Buenos Ayres and Paraguay ; and extends north and south from the frontiers of Peru, from which it is, however, separated by great deserts, as far as Patagonia. This vast country is crossed and intersected in several parts, by chains of mountains as high as in any other region of the world.

St. Jago, or Santiago, the capital of Chili, and the residence of the governor and captain-general, is situated inland, about thirty leagues from the coast, and the nearest port to it is Valparayso. This government-general is divided into particular districts; and the city of Mocha, situated only three short leagues from Talcaguana, is the residence of the military commandant of the district of La Concepcion, destroyed by an earthquake in 1751. On our arrival here, Brigadier Don Ambrosio Higgins, *maestre del campo* of this department, was concluding a treaty of peace with the Indians, neighbours of those called Friendly Indians, but who, notwithstanding that title, had been engaged in a war by the bravest and most warlike of the Indians of the Cordilleras. The military operations of an able commandant consist in placing himself between his allies and his enemies, in order to prevent the increase of disaffection, and to have fewer combatants to engage ; but, in spite of the politick measures of Spain in this respect, the numerous Indians of the Cordilleras, who yet remain unsubdued, the continual revolt of the Indians, her allies, and the frequent insurrections of those whom she calls her subjects, are causes too powerful and too continually in action not to afford a presumption that her power in Chili will be unavoidably destroyed ; and, perhaps, the period of its overthrow is not so distant as she imagines.

Consequently every expedition issuing from Europe against the province of Chili, unless its object

should be such as I shall presently describe, will not only fail to defray the expences, but doubtless occasion a very considerable loss.

It must never be forgotten, that the general spirit which apparently reigns throughout the Spanish settlements, is not relaxed at Chili; and that the colonists are therefore mere farmers, or little retail dealers; so that although it is true that Chili produces a very large quantity of gold, an invader would find very little of it, though he would meet with an abundant supply of every article of subsistence, whether grain, wine, butchers' meat, or other provisions. These resources, it must be confessed, are but momentary, and cease to exist immediately on putting again to sea. The means of defence for preventing the landing of an enemy in this country, are extremely weak, not to say absolutely ineffectual. Even in the road of La Concepcion, which is considered one of the best in Chili, a landing might be effected in any part of it, and could receive no opposition, except from two or three batteries, of which the most considerable is placed on the beach. The others might easily be silenced by a few troops, landed out of the range of their shot. I should in justice, however, observe, that these batteries are placed here not to prevent a landing, but merely to protect the merchantmen trading from Chili to Peru, against the attacks of pirates, who might otherwise very easily take them in the anchorage of Talcahuana at a cable's length from the shore. A landing in the bay of La Concepcion, therefore, offers no sort of risk, no fear of losing either ships or men; and I am firmly of opinion, that, afterwards, a certain number of regular troops, marching in military order, might arrive, without difficulty, at Mocha, which, as is already mentioned, is only three short leagues from Talcahuana, over a vast sandy plain, reaching within a
mile

mile of that town, situated on a second plain, lower than the former, and a quarter of a league from the river Biobio.

The richest inhabitants of this city have no moveable property ; and, on the first view of the settlement, it is evident, that to levy any contributions on them would be inhuman. All the advantage to be gained by a descent here, would be confined solely to making an incursion of three leagues up the land ; and I should even think it imprudent not to hasten back to sea again immediately, for, in a very few days, the *maestro del campo*, would be at the head of 15,000 men ; and in whatever manner the war is conducted, there would be no hope, if he had the least principle of honour, of forcing him to capitulate. Should an enemy keep the field, he will be easily surrounded, or harassed by a cavalry more numerous than all his forces ; and should he occupy the heights, the Spaniards being better acquainted with the defiles, he will not even, by that means, be able to carry on the war with greater advantage ; and the wisest measure he can adopt, not to say the only one he can take, is to retreat.

A more certain means of hastening the ruin of the power of Spain in Chili, would be to form alliances with the Indians of *Arauco* and *Taucaapel*, who would speedily be joined by those of the *Cordilleras*, and those whom the Spaniards call their friends and allies, would not fail soon to enter into the confederacy. Assisted by the knowledge and the arms of Europeans, this league would be so formidable to the Spaniards, that, to avoid witnessing the ruin of their settlements, and the devastation of their possessions, and perhaps to secure their own personal safety, they would be obliged to abandon all, and take refuge in Peru.

It will readily be perceived, that this plan is capable of great extension, and would require much

further investigation; but the time when it may become of utility to France, is so far distant, that it is sufficient only to have suggested it.

(Signed) MONNERON.

On board the Bouffole, 30th March, 1786.

EASTER ISLAND.

At the Anchorage called Cook's Bay, South Latitude 27° 11'; Longitude, West from Paris, 111° 55' 30".

THIS island, from its situation out of every frequented track of navigation, from its total deficiency of wood and water, and from the state and condition of its inhabitants, who have the greatest inclination in the world to receive, without the possibility of returning any thing, may offer a vast field of speculation to the naturalist and philosopher; but can, in no respect, be interesting to any of the various maritime powers of Europe.

(Signed) MONNERON.

On board the Bouffole, 12th April, 1786.

SANDWICH ISLANDS.

At the Anchorage, 29th May, 1786, in 20° 34' North Latitude, 158° 25' West Longitude from Paris.

WERE I obliged to write a memoir on the advantages of the situation of these islands, under any or every point of view, I must derive all my information from the accounts contained in Cook's third voyage;

voyage; and were the utility of such a discussion demonstrated, it is evident it may be pursued with greater advantage and sagacity at Paris, than at sea.

(Signed) MONNERON.

On board the Bouffole, 5th June, 1786.

BAY DES FRANÇAIS.

Situated on the N. W. Coast of America, in 58° 38' North Latitude. At Anchor in different Parts of the Bay, from 2d July to 1st of August, 1786.

THE impossibility, in my opinion, of advantageously establishing a French factory in this bay, renders every discussion of that kind embarrassing to the writer, since a memoir, resting on vague suppositions, can deserve no greater confidence than if it were founded on uncertain facts. It is therefore with great satisfaction, that I find, by a paper which M. de la Pérouse had the goodness to communicate to me, that he dissuades government from engaging in such a settlement, at least before his return to France. At that period, I shall produce all the notes necessary to the discussion of this affair in full detail; and should government form any decision on that object, it will be easy then to demonstrate its advantage or inconveniences.

It will readily be presumed that the severity of the climate, the small resources of this country, its enormous distance from the mother country, and lastly, the competition of the Spaniards and Russians, who are very conveniently situated for trading with it, will prevent other European powers from making any settlement between Monterey and Prince William's Sound.

It will also be previously necessary, and especially before attempting an establishment, to weigh the expence and the profits, in order to determine the number of persons to be employed in such a factory. This knowledge is indispensably necessary, in order to provide for the safety of the adventurers, and of the funds with which they would be entrusted, either against the natives of the country, or the enemies of the commerce of France.

(Signed) MONNERON.

On board the Bouffole, 19th Dec. 1786.

HARBOUR OF MONTEREY,

Situated on the N. W. Coast of America, in 36° 38' North Latitude. At the Anchorage, from 15th to 24th of September, 1786.

A CENTURY will probably elapse, and perhaps double that period, before the Spanish settlements, to the northward of the peninsula of California, will attract the attention of the great maritime powers. Even that in whose possession they now are, will not for a long time, perhaps, think of establishing colonies there, capable of making any considerable progress. Her zeal, however, for the propagation of the Catholick faith, has already dispersed over it several missionary establishments; but it is not to be supposed that even privateers will disturb the body of monks, by whom these are directed, in their pious exercises.

With the intention, no doubt, of favouring the presidio of Monterey, the galleon has, for many years, been obliged to touch at this port, on its return from Manilla to Acapulco. But it is so far from

from necessary either to put in, or to make the land, that even in time of peace, these ships often prefer continuing their course, and paying a certain sum by way of recompence for the advantage they might have afforded the place in landing at it; and, in time of war, they are still more desirous of avoiding it, if the Spaniards imagine their enemies are cruising off there.

The land about Monterey, though dry, seems adapted for advantageous cultivation. It is proved that European grains grow there both fine and abundant, and the butchers' meat is of the best quality. It is therefore certain, considering the commodiousness of the harbour, that if this settlement should ever flourish, a better port for one or more vessels could not be found in any part of the world. But previous to any political speculations on that head, we must wait till the Europeans established on the north-east coast of this continent shall extend their settlements to that on the north-west, which will not speedily be accomplished.

(Signed) MONNERON.

On board the Bouffole, 24th December, 1786.

OBSERVATIONS ON

MANILLA AND FORMOSA.

By M. de la Pérouse.

MANILLA.

IN that part of my narrative which relates to Manilla, I have endeavoured to detail all my ideas with regard to the new company lately established in Spain; reserving for a particular memoir my opinions on the extreme facility with which other nations might possess themselves of this colony. The dominions of Spain

Spain in the Philippines are confined solely to the island of Luconia, which, in fact, is very considerable, and contains 900,000 inhabitants, capable of carrying on every manufacture, and performing every species of cultivation. This people detest the Spaniards, by whom they are at once horribly oppressed and despised; and I am convinced that a nation who should supply them with arms, would, without much exertion, excite an insurrection in the island.

The only bond which yet attaches them to their conquerors, is that of religion. The majority of the inhabitants of Luconia are very sincere Christians, even to enthusiasm. Whatever power, therefore, would obtain this island, must leave them their churches, their priests, their oratories, and, in general, treat every object of their worship with respect. This would be the more easy, as almost all the parishes are, at present, served by Indian priests, who secretly entertain for the Spaniards the same hatred that lurks in the bosom of all their countrymen.

The Bay of Manilla is open to ships of every size, and can be defended only by men of war. Any expedition, therefore, against this colony, presupposes a decided superiority of naval force.

The fortifications of the place, though regular and perfectly well kept up, could only retard for a few days the surrender of a city, which cannot expect succours either from Europe or any other quarter.

The garrison is composed only of one regiment of mulattoes. The corps of artillery consisting of 200 men, as well as the 150 dragoons, are also Americans; and though the Spaniards are persuaded these troops will bear a comparison with those of Europe, I am so well convinced of the contrary, that I should not fear with 1,500 men to attack 3,000 of the former, and that with certainty of success.

The militia of the island may form a body of 8,000 men, and keep the field as in the war of 1760, after
the

the English had possessed themselves of the city of Manilla. But circumstances are now very different, and it would not be difficult to oppose one part of the country to the other, should any part of it declare for the Spaniards; or were it not infinitely more probable that the militia would refuse to march, particularly if means were found of gaining over some of the Indian priests, and persuading them that the invaders are as good Catholics as the Spaniards.

Indeed, the conquest of Manilla appears to me so easy and so certain, with a superiority of naval force and 5,000 troops, that I should prefer this expedition to one against Formosa, and I think I might answer for its success.

But we ought rather to view the Spaniards as our good and faithful allies than as enemies, and it must be understood that this colony could be of no utility in carrying on a war in India. Situated in the seas of China, which can only be navigated with the monsoons, it is impossible for the commander of a French squadron ever to entertain an idea of taking refuge there. To touch at the Isle of France, though, on account of its great distance, it is generally deemed so disadvantageous for any operations in India, would yet be infinitely preferable.

The want of commerce at Manilla almost entirely prevents any supplies of provision from being procured there, because the inhabitants cultivate no more than is necessary for their own consumption. It would not, however, be impossible to procure some cargoes of rice, a little cordage made in the country, which is very inferior to that of Europe, and a few masts; but these articles must certainly be sent for in our own vessels, nor is it to be supposed they could be procured from Manilla on a simple demand; and as the seas of China are navigable only with the monsoons, the necessary supplies must be provided very long beforehand. It must be remembered too that
the

the ships that come from Manilla have to traverse seas where there is much to be apprehended from an enemy; and it will be almost absolutely necessary to divide the forces more or less, in order to protect their return.

Taking the last war for an example, I think that the fleet of M. le Bailli de Suffren was of the greatest utility to the colony of Manilla, by occupying all the forces of the enemy, and preventing them from meditating any other distant expedition, while, on the contrary, the city of Manilla could be useful to the former in case it could have supplied him with piastres; but as that is not a production of the country, it is only to be expected from Mexico, which never sends more than sufficient for the most urgent wants of the Spanish colony.

The Spaniards, whether Creoles or Europeans, in the whole island of Luconia are only estimated at 1,200. It is a singular fact, that not one Spanish family has continued to the fourth generation, while the population of the Indians has augmented since the conquest, because the land does not, as in America, conceal within its bosom those destructive metals, whose mines have swallowed up the generations of several millions of men employed in working them. In the island of Luconia only a few grains of gold are found diffeminated among the sand of the rivers; and the labour of collecting it is even less fatiguing than that of cultivating the land. The Spaniards are also sovereigns of the Southern Philippine Islands, nearly in the same manner as the King of Sardinia is King of Cyprus and Jerusalem, or the King of England King of France. They have, in fact, a few presidios in the neighbouring islands, and in Mindanao, but their limits are not more extensive than those of Oran or Ceuta, on the coast of Africa.

FORMOSA.

IF you have devoted a few moments to reading the chapter in my journal relative to Manilla, and my navigation along the coast of Formosa, you will have already perceived that I anchored before the capital of that island opposite the ancient port of Zeland; but the sand-banks, of which this coast is full, did not permit our ships to approach within a league and a quarter of that place. I did not think proper to send a boat on shore, which I could not protect with my guns, fearing it might be detained on account of the war which at that time existed between this colony and its metropolis. M. d'Entrecasteaux had dispatched the ship *la Sylphide* to Manilla, to desire me to navigate with great circumspection to the northward of China, as the least uneasiness on the part of the Chinese might be injurious to the negociation with which he was entrusted. I confess I was not deterred by this motive, for I am convinced more is to be gained of the Chinese by fear than by any other means: but I considered that, in sending a boat to Taywan, the greatest advantage I could expect would be its returning with a few refreshments, and without any communication with the inhabitants; for even should the officer be permitted to land, most certainly he could have given me no information upon his return, since he could not have comprehended a single word of Chinese. Thus should I have risked very great inconveniences, unattended with the hope of any advantage, had I hazarded the sending a boat on shore. I did not, however, neglect to obtain information relative to Formosa, both at China and Manilla, and I think I may very confidently assert, that 2 frigates, 4 corvettes, and 5 or 6 gun-boats, with a sufficient number of transports for 4,000 troops, provided with artillery and all necessary ammunition, would be sufficient to secure the

the success of this expedition, which a wise man would not undertake with a smaller force, though perhaps 1200 or 1500 men would appear sufficient to those enterprising adventurers, who having nothing to lose, make war a game of mere hazard, without considering how humiliating it is for a great nation to miscarry in its attempts against a people very inferior in courage, in arms, and in military science; though, in my opinion, far above the contemptible rank in which they are held by Europeans. The empire of China is so vast, that a great difference may well be supposed to exist between the inhabitants of the northern and southern parts, the latter of whom are a cowardly mean-spirited people. Europeans inhabiting the province of Canton, from an acquaintance with their character, entertain the most contemptible opinion of the Chinese.

But the inhabitants of the north, those Tartars who conquered China, must not be confounded with this servile race. Yet, though superior to the Chinese of the south, I cannot compare them with even the worst of our troops; to whom they are still far inferior, though not so much in courage, as in their manner of making war. Be this as it may, the Chinese, who consider the preservation of Formosa of the highest importance, keep a garrison of 10,000 Tartars on this island. Their cannon, their forts, even the posts which they occupy, and in which they are intrenched, I disregard; but I think an enterprize of such a nature, should never be formed without an almost absolute certainty of a successful conclusion. The coast of Formosa being flat, small vessels only can approach it, and boats drawing seven or eight feet water, carrying guns, and adapted for protecting the descent, would be absolutely requisite. The first operation ought to be that of gaining possession of the Pescador Islands, where there is a good harbour, to shelter the fleet; and it would not require more than five or six
hours

hours to cross the channel which separates these islands from Formosa. The time for executing such an attempt, would be April, May, and June, and before the months of July and August, during which, the seas of China are exposed to water spouts, which are greatly to be dreaded by ships.

Should this expedition be made in concert with the Spaniards, the *entrepôt* of Manilla would considerably facilitate its success; because from that colony, it is at all-times easy to effect a landing on the southern part of Formosa; and provisions and ammunition would be found there, which might be wanted, should a resistance or the loss of any ships render succours necessary.

The island of Formosa is of very great importance; and any nation possessing it, and essentially studying to improve it to the best advantage, by keeping a strong garrison there, with a marine at the Pescador Islands, would obtain by fear every thing they might demand of the Chinese. I am convinced, that had not the English been engaged in wars, which have employed all their forces, they would already have effected this conquest, more interesting in every respect for them, than for any other nation, because the pernicious use of tea, has rendered them tributary to China, and that plant is become in all the British islands, an article of first necessity. I should not be surprised, soon to behold all Europeans reduced to the same condition in China, as the Dutch in Japan. But this revolution will be of little importance to France, and even to the rest of Europe, whose concerns with China are not worth their submitting to any humiliations; though I must once more observe, that the English will either be obliged to submit to them or to engage in a war; and I have no doubt they would then rather adopt the latter alternative.

It is well known in Europe, that the eastern part of Formosa is inhabited by the aborigines, and does

not

not recognize the sovereignty of the Chinese ; but the western part is extremely populous, because the Chinese being too numerous, and greatly oppressed in their own country, are always ready to emigrate. I have been assured, that since the conquest of the island, 500,000 have removed there, and that the capital city contained 50,000 inhabitants. As these live in habits of labour and industry, this would be a further advantage to the conquerors. But it must ever be kept in view, that greater forces would, perhaps, be required to keep in subjection than to conquer a people, naturally very prone to rebellion ; and that if, after conquering the island, the means of preserving it should be neglected, and the victors avoid the expence of keeping, and recruiting a body of three or four thousand men, at so vast a distance, they would run the risk of being all massacred.

I believe the produce of this island, would one day defray the expences of its government ; but I am persuaded, that the first years of its possession would be very expensive, and a ministry would see with regret, considerable sums of money pass over to this part of Asia, which promised but a very distant return.

The commerce with China would at first be interrupted, but it would, in my opinion, soon revive with increased vigour, and permission would certainly be obtained, to visit the several ports of the province of Fokien, the coast of which forms one side of the Bay of Formosa. It remains to be considered what opening offers for the Chinese articles of commerce, the basis of which is tea, an article consumed hardly any where but in England, a little in Holland, and in the United States of America.

I may, therefore, conclude this memoir with an assurance of the possibility of conquering Formosa, by the means I have pointed out, and particularly should we be favoured with the assistance of the Spaniards of Manilla ; but it is not equally clear that this conquest

quest would not be an additional burden to the state, and then it would be far better not to have conquered, than to permit such a settlement to languish.

In the harbour of St. Peter and St. Paul,
10th September, 1787.

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OBSERVATIONS ON THE TEREBRATULA, ANOMIA, OR
POULETTE.

And a Description of a Species of that Animal found in the Seas of Eastern Tartary; by M. de Lamanon, Member of the Academy of Turin, and Correspondent Member of the Academy of Sciences.

THE animal called terebratula, or poulette, has long been found in a state of petrefaction; and it has been thought, that nothing analogous to this shell now exists in the sea. It would, however, have been easy to prove the contrary. The terebratula, if I may be allowed the expression, belongs to all ages, and all countries. Cotemporary with those shell-fish, whose race is now extinct, though they once peopled the ancient waters, it has survived them; and after having escaped the astonishing revolutions of the earth, which have destroyed the greater number of *testaceæ*, *pisces*, and *crustaceæ*, it has witnessed a new race succeeding the old and former, as the seas of the present day have gradually been formed. The fossil terebratula is found in the mountains of all climates, and most frequently among the belemnites *, the re-

* Belemnites, vulgarly called *thunder-bolts*, or thunder stones, are supposed to be originally either a part of some marine production, or a stone formed in the cavity of some worm-shell, which being of a tender and brittle nature, has perished, after giving its form to the stone. They are often inclosed in, or adhere to other stones, and are most frequent in gravel or in clay: they abound in Gloucester, and are found near Dedington in Oxfordshire, where they sometimes contain the silver marcasite.—*Translator.*

mains of cornu ammonis, hyfterolithes, and other aquatic inhabitants of the ancient world. The living terebratula is found in the midft of fhells of late formation, in both hemifpheres.

Aldrovandus has given, under the name of chamæ, the figure of a true *poulette* caught in the fea; but he wrote as was the fafhion in the end of the fixteenth century. It was not till 1748 that the foſſil *terebratula* was diſcovered; and Volſterdorfis, I believe, the firſt who has ſpoke of it, in his *Syſtème Minéral*, printed at that time. The learned tranſlator of Lehman ſays in a note, Book III, page 182, that M. de Juſſieu ſhewed him a ſpecimen analogous to the terebratula, found in the ſea near Marſeilles. M. de Bois-jourdain, at Paris, and M. Schmidt, at Berne, are ſaid each to poſſeſs a marine terebratula in their rich cabinets. M. de Joubert has deſcribed, ſome years ago, in the Memoirs of the Academy, the *poulettes* of the ſea of Montpellier, which are in general ſmaller than thoſe found in the mountains. I have ſome in my cabinet as large as the foſſils that come from the ſeas of Malta; and I have ſeen others in the cabinet of natural hiſtory belonging to the univerſity of Turin, that were taken in the ſeas of Nice. Some are found at Leghorn, and M. de Luc has had one in his cabinet more than five and twenty years; of which he ſays, "It is not of the ſpecies moſt commonly found among foſſils." (*Lettres ſur l'Hiftoire de la Terre et de l'Homme*, firſt letter, page 238.) They are alſo found in the Adriatic Gulph. M. l'Abbé Fortis, who diſcovered them, ſays, that they keep at a depth of two hundred feet in the neighbourhood of the harbour of Siberico, and are found at a much greater depth in the caverns where coral is formed. The *poulette* has prominences on both ſides, and is ſlightly canalicated both in its length and breadth. He conſiders it as a new ſpecies, and adds that, in part, it reſembles the foſ-

fil *poulette* described by M. le Baron de Hapech, of which he has given the figure, (plate iv. Nos. 16 and 17). That of Mahon has been known at Paris, as are those which come from the Indies, and of which one species is smooth, and another striated. They are also met with in the Norwegian seas, and M. de Bougainville caught one of them in the Strait of Magellan.

Fossil *poulettes* have been found in a much greater number of places; and the varieties they present are much more numerous. During my voyage I have collected nearly thirty species, the last of which I found at *Port des Français*, on the north west coast of America. On comparing the fossil *poulettes* with the living animals of that class, I have found some of them exactly similar. To some of the marine animals no analogous petrification is known; but there are still more among the petrifications for which no counterpart has yet been found in the sea.

I have met with a few small *poulettes* on some muscles drawn up by the Bouffole's men with their lines near the Bay of Ternai, in about 35 fathoms water. Sixty-two leagues more to the northward, near the *Baie de Suffren*, both large and small were caught on board the Bouffole, as well as by the *Astrolabe*; and M. de la Pérouse having thrown out the drag to know whether these shores produced pearl oysters, it brought up a species of pectinated oyster, which I shall elsewhere describe, and a great quantity of *poulettes*, apparently of different ages. The *poulette* forming of itself a separate genus, I thought it necessary to examine it with attention, and to describe, not only its shell, but the animal by which it is inhabited. This has not hitherto been done; for the description of the two *poulettes*, by M. Pallas, was taken from very imperfect specimens, as I shall have an opportunity of demonstrating. In the excellent work of M. Adamson on the shells of Senegal, an

explanation will be found of the technical terms I have been obliged to adopt.

TEREBRATULA OF THE COAST OF TARTARY.

Sect. I.—Description of the Shell.

Dimensions. { 20 by 18 in the largest specimen.
13½ by 12 in those of a middle size.
6 by 5 in the smallest.

These are the most usual proportions, for they vary not unfrequently in different individuals, and always with their age. The different species of pectettes cannot, therefore, be distinguished by the proportions of their shells. Nor do the sinuities of their edges afford better distinctive characters; for I have observed that, in the same species, the shell approaches to an orbicular form, or varies from that shape indifferently, and that some have the edges of their valves on the same plain, while in others one of the valves makes a salient angle in the middle of its edge, and the other a returning angle.

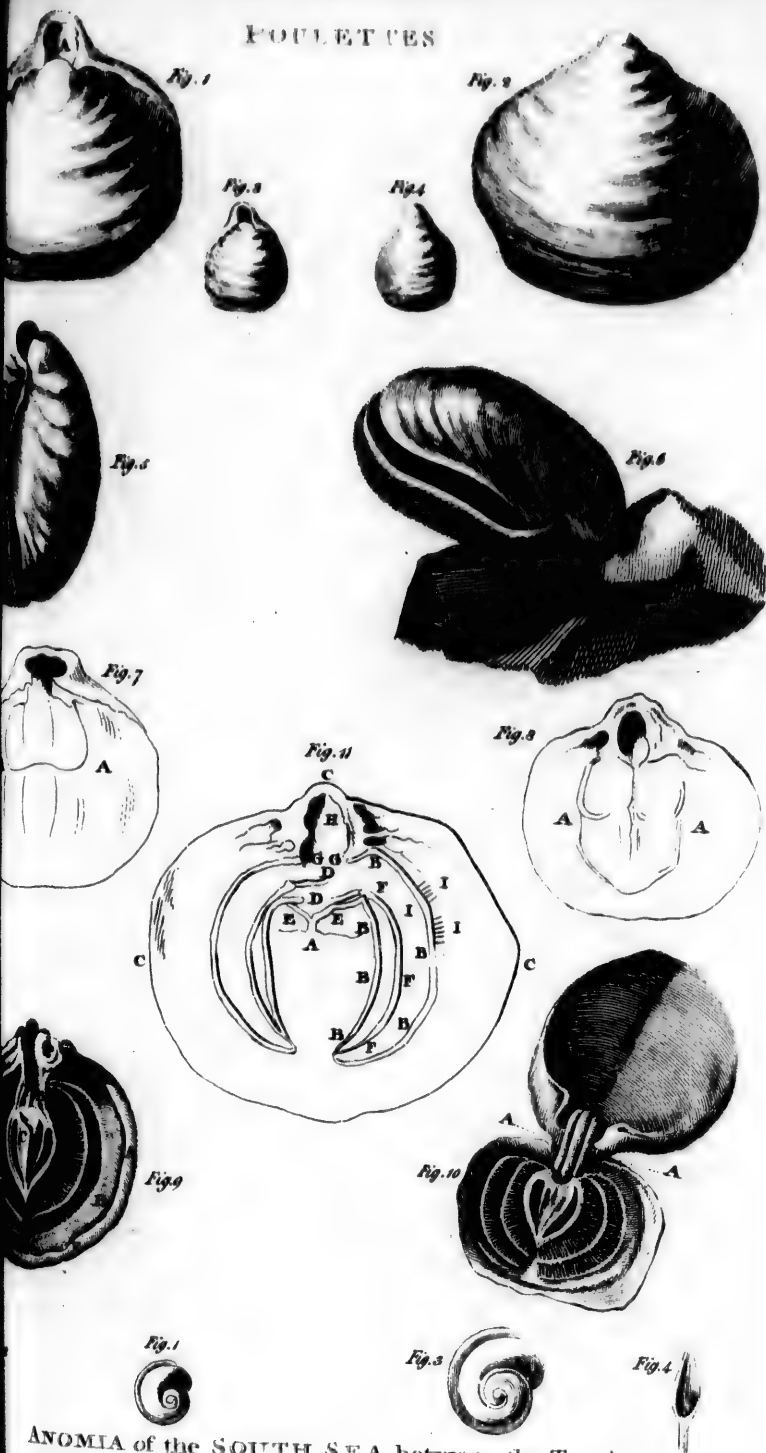
Nature of the shell. The shell is of a moderate thickness, nearly resembling that of the common mussel. It is somewhat transparent and convex, and swollen like the chamæ. Neither of the valves is much more convex than the other; but that which bears the spur, is rather more so, particularly in its upper part.

Striæ. On the surface of the shell are seen very slight transverse channels, semi-circular and undulating; which unite at the place where the shell ceases to be circular, and forms the angle which bears the summit.

Periostræum. These striæ are covered with an extremely fine and slightly adhering periostræum. Some have from one to three shallow and broad depressions spreading from the center of the shell in a manner almost

most

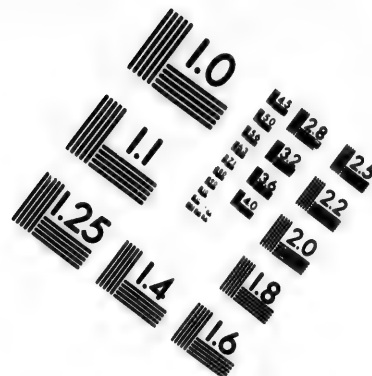
POULETTES



ANOMIA of the SOUTH SEA between the Tropics.

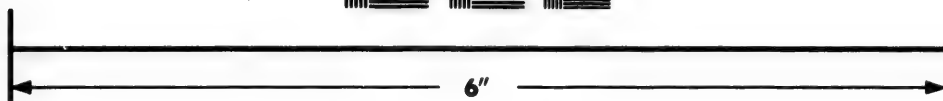
Pub. June 20. 1799. by L. Stockdale.





Resolution Test Chart Labels:

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most insensible, terminating at the edges where they are more marked, and, with the corresponding parts of the other valve, form the salient and returning angles before mentioned. This periosteum adheres a little more strongly at the returning than at the salient angles.

Valves. The valves are equal in that part of their circumference, which is round, and shut very exactly; but, towards the summit, one of the valves bears a spur, extending beyond the other, and they are consequently unequal, like those of the oyster.

Summit. This spur or summit is formed by the edge of the shell folding inwards, and the elongation of its upper side: the folded edges form a considerable aperture, rather of an oval shape, and large; and through this the animal protrudes the muscle, by which it adheres to any extraneous body. These edges not being joined, a space is left between them occupied by the summit of the other valve; and thus they have a free motion: this shell is therefore not perforated, as its name seems to indicate; for the opening is not pierced through one of the valves, but formed by the elongation of the one, the folding of its edges, and the approach of the other valve: the summit is not pointed but round.

Ligament. The ligament, as in the oyster, is placed between the summits, is not apparent externally, and is fitted to the pedicle of the animal. As the summit occupies a considerable part of the shell, the two valves cannot be opened far without danger of breaking. It is very solid, though fine and scarcely apparent; is enclosed in a little channel, filled, when the shell is closed, by the ridge of the correspondent part of the valve which has the spur. This ligament preserves its spring, and does not become very brittle, even after the shell is empty and quite dry.

Hinge. Oysters have no hinge, being devoid of those

those teeth by which it is formed in many other shell-fish. The *terebratula* has been considered as an oyster, because its hinge, which indeed is not to be found in the fossil shell, has not been examined; but on opening the live *poulette*, teeth are discovered composing the hinge, even larger than those of a great number of other shells.

It is very remarkable that in a fossil state the valves of this animal are almost always united; other bivalvular shells have their valves generally either open or totally separated; a fact which must be attributed to the nature of the hinge: that of the *poulette* will not permit it to separate, and the ligament which it preserves, and which is very extensive, contributes to keep the two valves united.

The teeth that form the hinge of the *poulette* nearly resemble those of the *spondylus* described by M. Adamson, and are formed of two round prominences in the *spondylus*, and somewhat elongated in the *poulette*. Above these teeth is placed the ligament, in the spur valve. Between this and the teeth are two cavities, one on each side, serving as alveoli to receive the teeth of the other valve, where are similar alveoli for the same purpose. The teeth of the spur-valve have besides a slight ridge, which enters into a longitudinal channel perceivable in the other valve, in the interior part of every tooth.

Nacre or Enamel. The substance which covers the inside of the shell, holds a middle rank, like that of the oyster, between mother of pearl and the interior of shells which have no such coat, and its colour, gloss, polish and thickness vary, not only with the age of the animal, but also in different individuals.

Colour. The colour of the teeth is always white. The outside of the shell inclines more or less to that of red ochre, particularly towards the edges; and the
inside

inside has also a very light shade of the same red on a varying ground of greyish white.

Tendons. The description of these belonging to that of the animal, we shall here consider only their situation and impresson on the shell. On each valve of the *poulette* I examined, the places of the two tendons were seen very distinctly. In this respect also they differ from the genus *ochrea*, which have only one tendon passing from the middle of their body. The tendons of the *poulette* in the spur-valve are oblong, situated near the summit and hollow. Each of them has curved transverse furrows divided by a longitudinal furrow, being a tolerable imitation of the wings of several insects. In the other valve, the tendons are of a different shape. They are placed in the same manner, and very irregularly rounded, and are circumscribed with two canulations, which leave a kind of ridge between them, and then continue in a straight line towards the aperture of the shell, about two thirds of its length. This ridge is a resemblance of a taylor's shears.

That part of the summit of the shell through which the pedicle of the animal passes, is striated longitudinally in the spur-valve, the middle stria being the deepest; and there is one transverse stria dividing all the longitudinal stria, in two equal parts. Nothing similar appears in the other valve,

The shells of *poulettes* have, in the inside, a very thin part peculiar to themselves, which some authors have mentioned under the name of *tongue* or *fork*, because they had never seen them entire. It serves to sustain the body of the animal, and will be described in speaking of its more immediate use.

Sect. II.—Description of the Animal.

THE anatomy of shell-fish is very delicate, and presents insurmountable difficulties. The labours

of Rhedi, of Réaumur and of Swammerdam, have left it still far from complete, and in their immortal works they have confessed they often wandered in the dark. In the animals that inhabit shells, and particularly in the bivalvular, many parts remain to be discovered, and the uses of others are yet undetermined. Further comparisons are required relative to the generic, specific and individual differences, and in this study a vast field is still left to be explored. Some discoveries of the kind I hoped to have made in the dissection of the animal which inhabits the *bénitier* scallop, or *pecten maximus*, which is the largest of the bivalvular tribe hitherto known, and in which all the parts must be distinctly apparent. I saw a few of these shells at the Philippines, but the province that supplied them was too far from the port of Cavita, where we had put in. It would be far beyond my powers to give the complete anatomy of the fish, but following the example of Adamson, I shall consider the parts that are most known, and which suffice to distinguish the genus.

Manteau and Trachea.

The *manteau* of the poulette of *Baie de Suffren*, is formed by a very fine membrane, which covers the whole of the inside of both valves, and enfolds the body of the animal. At its origin it is of the whole breadth of the hinge, but afterwards divides into two lobes, one of which covers the spur-valve, and the other that on which the body of the animal rests. It forms, therefore, only one aperture, which terminates at each end of the hinge, and is of equal extent with the interior surfaces of the shell. Thus there is in appearance but one trachea, formed by two lobes of the *manteau*. M. de Pallas did not distinguish the *manteau* in the two varieties he has described, but has called them, very improperly, *periostraca*;

ostea; an error into which he has been led by the decayed state of the dried specimens he examined.

Muscles. After partly opening the shell, I cut the ligament as delicately as possible; opened the hinge, and having detached from the spur-valve the lobe of the manteau which covers it, pulled it over the body of the animal. By this operation I discovered the great muscles which adhere to the spur-valve; they are soft, membranous, and, as it were fleshy within, being covered with small sanguiferous glands. From the inferior part of each muscular area arises a strong tendon, reaching to the extremity of the manteau. They run parallel to the edge of the shell, and are at a distance from each other. Each of these is inclosed in a kind of flat bag, in form of a ribbon, which is filled with a red viscid matter. The place from whence the muscles spring, furnish, besides the muscles which extend over the lobe of the manteau, a true blood, principally contained in three small fleshy red bodies, of a glandular form, and unequal thickness, which may be perceived, on tearing the muscles near their root, and perhaps, supply the place of a heart. The anatomy of shell-fish is not sufficiently advanced to decide this question; but certain it is, that in the poulette, the muscles attached to the spur-valve, are covered with fleshy parts, containing a considerable quantity of blood, as well as two other muscles, which originate in the same place, and contribute to form the pedicle, of which I shall presently speak.

The muscles attached to the other valve, are also divided into several parts. Some of them run over the lobe of the manteau; several rise in a kind of tuft, and are adapted to the superior valve; some are subdivided, so that I could not follow their ramifications, even with a microscope; but others more apparent, contribute to form the pedicle which protrudes through the aperture left between the two valves, attaches to both of them by several tendons, and fastens

on

on external bodies, particularly on other living shell-fish. The muscles of the poulette have therefore, three attachments, one on the internal surface of each shell, and the third on any foreign body.

The pedicle is cylindrical, surrounded by a muscular substance, inclosing several tendons, and is from one line to two and a half in length, and two thirds of a line in diameter. By what means it adheres so forcibly to different bodies I am ignorant; for is is easier to lacerate both the animal and every separate muscle which arises from the inside and unites with the pedicle, than to detach the pedicle itself, from the base it fastens on; and the gluten which unites them resists even the heat of boiling water. This pedicle supports the shell, and keeps it so elevated, that when in the water, it is found in a position inclined towards the horizon. The narrowest valve which contains the animal is always the lowest, and is covered by the superior or spur-valve. There is, therefore, no reason for generally calling the smallest the superior valve; though attending only to the shells of oysters arranged in cabinets, it has been erroneously imagined, that the smallest was always the superior, and served as a covering to the larger.

To determine with certainty, whether these animals possess the faculty of locomotion, or remain continually fixed in the place of their birth, would require a long course of observation and experiment. I have reason, however, to believe they have the power of moving from one place to another, but that it is very rarely done throughout the course of their existence. Having detached several pedicles with a sharp instrument, I observed, particularly in the larger sort, that they were fixed in a small cavity formed in the shell to which they adhered; and this kind of excavation, and the strong adherence of the pedicle to any extraneous body, prove in some measure, that the *poulette* occupies the same place for a very long time.

But

But I found several groupes of small ones so close together, that they could not grow without incommoding each other; for a single poulette of a moderate size, occupies an equal space with five or six small ones.

Gills. After raising up the lobe of the manteau, which I had pulled over on the body of the animal, I observed its gills, which are large, and composed of two membranous laminæ on each side, of which the upper is the narrowest. These laminæ are united by a fine membrane, so as to form together but one pouch, and at their edges have long fimbriæ floating on the manteau. But the most remarkable phenomenon is, that the gills are supported by small bones as in fish. These bones I shall describe, after having enumerated the soft parts distinguishable in these poulettes. The gills are arched on each side, and separated at the lower part, where the fimbriæ are longest, so that the two gills on one side are perfectly distinct from those of the opposite side. These gills have their origin at the teeth of the hinge.

Mouth, Œsophagus, Stomach. In the middle of the gills, are seen the mouth, œsophagus and stomach, forming a triangle, of which the first is the base. It is placed toward the hinge, and formed by a large transverse aperture without a jaw-bone, and with lips not very apparent. The œsophagus is very short, but capable of elongation, when the animal opens its mouth. The stomach, which is in the shape of a pointed sack, is attached by a membrane to the small bones of the gills, but only in the upper part, and for half its length. On opening it, I found a small shrimp entire, and another half digested. It is difficult to conceive how shrimps, which possess great agility, and good eyes, should suffer themselves to be entrapped by a blind animal, who can scarcely open his shell, and is fixed in an immoveable situation: but nature has given to animals, and aquatics in particular, unknown means of accomplish

comply with their vital functions; and these means, if once discovered, might conduce, by some fortunate application, to the progress of the arts.

Intestines and Anus. The intestine is seen at the bottom of the stomach, of which it appears like a continuation. It is extremely short, (not being half a line in a shell of 15 lines in length,) and is formed of a very fine membrane. The faeces are expelled on the lobes of the manteau, but are very easily rejected outwards, by the various motions of the two lobes. It is very probable the extremities of the poulette, which naturally adhere to the entrance of the trachea, serve as a bait for shrimps and other small animals on which it feeds; and the situation of the anus at the aperture of the shell, and that of the mouth, in the remotest part of it, confirm this conjecture.

Small Bones of the Gills. The small bones of the gills, which I have discovered in these animals, have not, hitherto, been observed in any animal of the order of testacea, and in this the terebratulæ approach nearer to fish, than any other of that tribe. Only a small part of these bones remain in the *poulettes* seen in cabinets; and thence are derived the improper appellations of *tongue* and *fork*, which are only applicable to the form of the fragments there exhibited, and do not indicate their use.

The small bones of the gills are composed of several pieces. The principal is of an oval form, and arises from each side of the hinge, appearing to be an elongation of the salient parts. It extends more than two-thirds the length of the shell, where it is reflected, and terminates above the *fork*, to the branches of which it is united by mere superposition; a sort of articulation, very common in the numerous parts, that compose the heads of fish. The fork is situated at somewhat more than two-thirds the length of the shell, reckoning from the summit; and is formed

formed by a pivot divided into two long pointed branches, which are uncommonly fragile, and sufficient, as already mentioned, the extremities of the small bones of the larger gills. The lamina, which forms on each side a second order of gills, is connected with an incurvated bone; which, on one side, is attached to the inferior and internal part of the small bone of the larger gills; and, on the other, extends as far as the side of the animal's mouth, where it is united to another small and flat bone, which lies upon a small bone, similar to that on the other side. These last bones are exactly below the membrane that forms the mouth; but I am ignorant of their real use, or whether, as I presume, the animal employs them in voluntarily opening and shutting his stomach, by distending or contracting the skin at the orifice. All these bones are flat, extremely brittle, and surrounded with tendons and membranes. These articulations give mobility to the gills, and they support the body of the animal, which touches neither of its valves, but rests in the middle, as it were upon tressels. The space comprised between the branches of the bones of the gills, is furnished with a transparent but solid membrane; and a similar one rises perpendicularly from the foot of the *fork*, and separates the place where the body of the animal lies, from all the rest of the shell. This membrane leaves at the two corners an aperture, communicating with the space between the lobes of the manteau, and which supplies the place of a trachea; for it has been remarked, in the description of the manteau, that the two lobes are entirely separate, and consequently form only a false trachea.

From this description of the poulette, it follows that this animal ought not to be classed in the same genus with the oyster; for it has an hinge, several ligaments, and an internal structure, entirely different

ferent from that fish. Nor must it be confounded with *chama*, which have equal valves, no perceptible periostracum, a foot appearing externally, and two fleshy pipes, besides other distinguishing characters; still less does it resemble any other bivalve testacea, and must be classed separately; as it forms of itself a genus, of which the species, either living or in a fossil state, are very numerous.

EXPLANATION OF THE FIGURES.

- Fig. 1. *Poulette* of a middle size, viewed on its under surface.
 A, the aperture through which the muscular pedicle passes.
- Fig. 2. *Poulette* of a middle size, viewed on its upper surface.
- Fig. 3 and 4. Small *poulettes*, viewed on different sides.
- Fig. 5. Middle-sized *poulette*, viewed sideways.
- Fig. 6. Natural position of the animal in the water.
- Fig. 7. The valve having the spur.
 A, impression of the muscles on the inside of the shell.
- Fig. 8. The lower valve.
 A, impression of the muscles.
- Fig. 9. Internal view of a *poulette*.
 AA, laminae of the superior gills.—BB, those of the inferior gills.—C, the stomach.—D, the anus.—EE, the manteau.—F, the œsophagus.
- Fig. 10. AA, muscular pedicle, passing through the aperture of the upper valve.
- Fig. 11. The small bones of the gills.—A, the fork.—BBB, small bones of the larger gills.—CCC, lower valve.—DD, small bones below the œsophagus.—EE, points of the fork.

fork.—FF, small bones of the superior gills.—GG, teeth of the hinge to which the small bones of the gills are attached.—H, situation of the pedicle.—II, places of the fimbriae of the gills.

OBSERVATIONS ON THE CORNU AMMONIS.

Description of a Species found between the Tropicks in the South Sea. By M. de Lamanon.

OF all the animals, whose remains are found buried in the ancient beds of the ocean, the cornu ammonis is, indisputably, the most abundant, the most universally dispersed. And though some authors have enumerated 300 varieties, from half a line or less, to ten feet in circumference, the full number of them are by no means yet determined. Some naturalists, following the opinion of Linnæus, assert that animals, analogous to every species of the fossil cornu ammonis, still exist in the vast and deepest abysses of the sea, and for that reason call them *testacea pelagi*. Others, however, and in much greater numbers, unsatisfied with a mere assertion, consider the cornu ammonis as a genus of shell fish, to be found only in a fossil state, and no longer a living inhabitant of the ocean. Many authors have given descriptions of microscopic ammonites, found among the sand cast on shore by the waves of the sea, in various places; but almost all these shells, when examined with more accuracy, have been discovered to be only nautili. As for those Hoffman was supposed to have discovered in Norway, he found latterly, they were not cornu ammonis, but tubuli marini. My opinion is, that our present seas may yet afford some living

living specimens of the cornu ammonis, though few in number, and different from the fossil kinds; which must be considered as having been once the most numerous family, though their race is now extinct, or reduced to a few absolutely degenerated individuals.

The most gratuitous hypothesis is generally the most difficult to combat. Hence probably it is, that nothing has hitherto been alleged against the supposition of these pelagian shells existing in the ocean, though it is an opinion generally rejected, and the following observations appear to me to prove it erroneous.

The fossil shells of cornu ammonis are extremely thin and light, while those of animals residing constantly at the bottom of the sea are thick and ponderous. Moreover, the form of the fossil shell indicates, in some measure, the organization of the animal whose mansion it formed. The celebrated Jussieu proved, as long ago as 1721, that the greatest analogy exists between the cornu ammonis and the nautilus*. As it is well known that the nautilus, by filling or emptying one part of its shell, possesses the faculty of resting at any depth of water, doubtless the cornu ammonis must have the same power; and if the ocean be yet full of them, why are not some discovered by navigators? Or why are not some of their remains driven on shore by the waves? If they exist in such abundance, they must often be found in the nets of fishermen; or, at least, a few fragments would adhere to the lead, when it descends to a great depth. We may add also, that if these cornu ammonis never quit the abysses of the ocean, their

* There are, however, some very remarkable differences in their internal structure; the partitions of the nautilus have more sinuosity than those of the cornu ammonis; and the latter have no small holes of communication from one division to another.

French Editor.

petrifications would never be formed at the same level and in the same beds with other shells, which only inhabit the shallows. Yet they are found in Normandy, Provence, Touraine, and various other places, in company with turbines, buccina, and other shells, common to the sea-shores, and at all degrees of elevation from below even the level of the sea to the summits of the highest mountains. The same analogy leads us to believe, that Nature having given eyes to the nautilus, would not leave this animal destitute of the organs of vision; but of what utility would they be to a creature bound a prisoner in the caverns of the ocean, where rays of light can never penetrate.

The extinction of the ancient race of these animals is, therefore, a fact, which no rational hypothesis can overturn; and constitutes, indisputably, the most extraordinary circumstance in the history of animals inhabiting the sea. Of this fact the truth will remain unshaken, even by the discovery of a few living ammonites; for these do not resemble the petrified species hitherto known, are very rare, and must by no means be considered as the representatives of the ammonites, which were so various in their species, and so numerous, as to exceed, perhaps, the whole collective race of all the other testaceous fish that peopled the ancient ocean.

Wallerius, speaking of the cornua ammonis, ranks them with those shells which have separate divisions, communicating by a pipe. It is certain, however, there are some cornua ammonis not divided into separate compartments. It is well known that authors have considered them as nautili, and that in both species there are shells both with and without divisions. Each species must be supposed to have its varieties, as it should appear at least from the petrifications.

The name of cornu ammonis belongs to every uni-

valve shell, which is rolled up into itself on a horizontal plane dividing it into two parts, and formed of several united spirals, visible externally, and bearing to each other a certain proportion.

The volutes of Saint Hubert are not cornua ammonis, since their spirals are disjoined.

The tubuli marini cannot be cornua ammonis, because their spirals are not in one horizontal plane dividing the shell into two equal parts; for on examination it will be found, that the spirals, though prominent above are flattened below at their base.

The planorbes, which nearly resemble the cornua ammonis whose shells are not divided into cells, differ from them in their first spire, the breadth of which is much smaller in proportion to the rest of the shell. Some of these resemble in their external appearance the cornu ammonis with cells, and are very different from the other sort.

The nautili differ from the ammonites in their spires being internal. They enter the shell after the first circumvolution, while the spires of the cornua ammonis are all external.

I think it necessary to determine what I would understand by a cornu ammonis, previous to the following description of one I found in the course of my voyage.

The form of it is almost orbicular, the longitudinal diameter being to the lateral as 3 lines to 2 lines $\frac{1}{4}$. The first spire is larger than the others, and occupies nearly half the longitudinal diameter. The summit is situated at two thirds of this length; and it is terminated, on the right side, by a very small knob, visible with a glass; in which respect it differs from that of Rimini, which was, besides, microscopic and camerated, whereas this has no internal division of cells. The convolutions of the spires are four in number, besides one incomplete. These spires are equally convex on both sides, and are revolved on a plane dividing the shell

shell into two equal parts. On each side is a kind of boss, formed by the augmentation of the perpendicular spires, as their distance from the summit increases. The surface is smooth, and the back provided with a flat crest, smooth, brittle, and as thin as paper, and forming all round it a kind of solid ruff. It is nearly half a line in length, runs along the back of the spires, serves to join them together, and is instead of a *columella*. The orifice of the shell is almost triangular; the sides are prolonged in form of lips, and are rounded at their edges.

The cornua ammonis I have often formed in the stomach of *bonitas* (*Scomber pelamis* Linnæi, 170, 2) caught in the South-sea between the tropics, where we could not strike ground with a line of above 200 fathoms. These shells were covered with a black mud of a schistous nature. In size they vary from one to four lines in diameter, and are the largest animals of this genus that have hitherto been found alive. The animal being partly digested, it was impossible to make any observations upon it.

Explanation of the Figures.

- Fig. 1. Cornu ammonis of the natural size.
 2. Form of its mouth.
 3 and 4. The same magnified.



MEMOIR ON THE COMMERCE OF SEA-OTTER SKINS,

Éc. Éc.

IT was my duty never to lose sight of the aim of Government, in fitting out the Bouffole and Astrolabe at a very great expence, which was not limited to the improvement of geography; and that it was the province of the commander of the expedition to inform the Ministry what commercial advantages may

be derived from the productions of the different countries we have visited.

The coast of America, from Mount Saint Elias to Monterey, only offers, for the speculation of merchants, furs of all kinds, and particularly sea-otter skins; for such there is a certain sale at China. This fur, so valuable in Asia, is more common in America, and more widely dispersed over an extent of coast of 1200 leagues, than even seals on the coast of Labrador. But however extensive the empire of China may be, it seems impossible these skins should continue to produce so high a price, when the different nations of Europe shall have introduced a competition in the trade. To speak metaphorically, the mine of these animals is so abundant, that several vessels might in one year make a considerable traffick there, though the privilege of each were confined to an extent of coast of about 5 degrees, and ending about 30 leagues to the northward of Port San Francisco, the last of the Spanish settlements. Mr. Cox has given very ample details of the commerce of Russia with China, which must now be rated at more than double the amount, according to his table; and I have no doubt the Russian factors are extending their trade at this moment to Cook's River, and will soon carry it as far as Prince William's Sound *. To the political views of my expedition, it was of considerable importance to know with equal precision what settlements the Spaniards have to the southward. These two nations extend their commerce in these articles from Kamtschatka to California; but, at the time of my departure, it was unknown in France what climates produce these animals in the greatest numbers, what the limits of the Spanish settlements are, and what share that

* At Kamtschatka, I shall endeavour to ascertain the truth of this conjecture.

country designs to take in the fur trade with China. It was expected, perhaps, that the natural indolence of Spain would long afford room for the spirit and industry of other nations; and certainly the plan of the Viceroy of Mexico, of reserving the exclusive privilege of this commerce for the Government, is well adapted to realize these hopes.

I have no other means of acquiring the necessary information than by going to Monterey; for it is well known the Spaniards have not for a long time published any thing, it being the policy of their Government to preserve the greatest secrecy in all their concerns with America. Had not the address of the English, in latter times, procured and printed a copy of the journal of a pilot named *Maurillo*, we should have been ignorant, even to this day, of the missions at Monterey. This journal, however, being in a manner nothing more than the track of a small corvette from the port of *San Blas* to that of *Los Remedios* in 57° N. lat. affords us no other information; and the Spaniards, at that time, scarcely imagined these furs more valuable than rabbit-skins. The pilot *Maurillo*, therefore, does not mention even the existence of this amphibious animal, which, probably, he confounded with the seal. But his countrymen are now better informed, and have learned that there is a very great consumption of them in the northern provinces of China, where they form the winter dress of all mandarines of the first rank, and every other person of wealth in the empire; and are, perhaps, to them the most eminently desirable article of luxury; because they not only please the eye by their delicate gloss and fineness, but are also moderately warm, and, therefore, better adapted than any other furs for the purpose of cloathing.

In this place, I shall not repeat the various details*

* They are, however, absolutely necessary, to understand this memoir.

inserted in my narrative, which it appears to me, may be published without inconvenience, but shall proceed to enquire, whether it would be advantageous to France to establish a factory at *Port des Français*, of which as we have taken possession, and to which no other nation can controvert our claim; or whether she ought to leave that trade, to be pursued by private adventurers; or, lastly, prohibit her merchants from all speculation in this branch of commerce.

As this memoir is written during my passage from Monterey to China, I have not yet obtained all the information on the subject necessary for completely resolving these questions, which depend greatly on the demand for these skins at China, and particularly on the fall in their value, necessarily ensuing from the introduction of 10,000 sea otter skins, which the Presidio of Monterey alone would annually supply, while their new settlements to the northward of *Port des Français* might produce a still greater quantity.

We purchased at *Port des Français* about a thousand otter skins; a quantity sufficient to determine with precision their value in China. Scarcely any of these skins are, however, entire, because the northern Indians, not having a certain market for them, make them up into shirts, coverlets, and other articles of cloathing, and sold them to us in pieces, dirty, stinking, torn, and in short, such as, at present, cannot be expected to produce a very high price in China; though in Captain Cook's third voyage it is said, that every piece of this skin was readily sold. Had we an agent on the north-west coast of America, or even a regular commerce through vessels trading there every year, the Indians would soon bring to market only the entire skins, especially if our traders refused to accept any that had been made up for dresses.

It would have been extremely easy to have procured

cured five or six thousand skins, by putting into five or six other bays, only from *Port des Français* to that of *Los Remedios*, and employing the whole season in that trade; but convinced that it is the duty of vessels belonging to the State to protect and encourage commerce, but not to carry on trade themselves, I entirely rejected the idea. The quantity we have was obtained at *Port des Français* in the space of eight or ten days. They are more than sufficient for our purpose, and I would not have sacrificed the least object of utility for a thousand skins more; though a certain number were necessary to ascertain their value, and inform the commercial interest what may be expected from such speculations*.

I have reflected much on the plan of establishing a factory at *Port des Français*, or its environs, and find many obstacles to it, arising not only from its immense distance from Europe, but also from the uncertainty of the returns of such a trade with China, when Spaniards, Russians, English, and French, shall become competitors there on the sale of skins, which it would be so easy to procure on any part of this coast. It cannot be doubted also, but our East India Company would object to the privilege necessary to the adventurers before they can trade with China.

* The money arising from the sale will be divided among the sailors, as a compensation for the dangers they have incurred, and the fatigues they have undergone. With the greatest satisfaction I find all the officers and passengers of opinion with me, that to mingle any views of interest with the public spirited motives on which this voyage was undertaken, would be a species of sacrilege.

I have appointed M. Dufresne supercargo for the crew; and his accounts, the division we have made, and the receipt of each individual shall be laid before the Minister. Should the sum they produce be considerable, I doubt not, that added to the amount of each man's pay, it will induce most of them to marry; and thus their circumstances being made easy for their rank in life, many increasing families will be formed, which may, hereafter become of great service to the navy.

The equipment too would be so expensive, that the mere trade in furs would not be sufficient to indemnify a company like that of Hudson's-Bay, for the disbursements of its factory and ships, should they be obliged to return empty to Europe ; and it would be absolutely necessary that the East India Company should be bound, not only to freight them back, at a price to be fixed in Europe, but also to take the produce of their furs at interest, and employ it in the purchase of their cargoes.

But these regulations are subject to great inconveniences, and the two companies and their servants would be unavoidably engaged in incessant disputes. Nor would they succeed better were both trades united ; for then one of them must be inactive, and that one would most certainly be the fur-trade. Exclusive privileges always destroy commerce, as large trees choak the shrubs that grow beneath their shade.

Though the Russians are established to the northward and the Spaniards to the southward, many years will elapse before these nations meet, and there will long remain intermediate points which other nations might occupy without exciting the jealousy of any people, if governments were not always more restless and jealous than their subjects. Spain would doubtless consider it as an usurpation for the French to occupy a few acres of land, which the former might in vain employ whole centuries in searching for, if the latitude and longitude of the place were concealed. But, I confess, the advantages do not appear to me sufficient to justify hazarding the slightest altercation between the Courts of Versailles and Madrid ; and even granting the acquiescence of the latter in such a settlement, it would be necessary to make a trial of this commerce by private adventurers, in order to ascertain whether it rests on a firm basis in China. It would not yet be the time for constituting an exclusive company ;

company; a privilege should merely be granted to some commercial town for three expeditions of two ships every year, which should sail at the same season. It would then be possible news of the first expedition may arrive when the last was getting under sail. These equipments would be expensive, because the ships must be well built, and fitted out with an ample store of sails, cables, and cordage of every kind, and commanded by experienced seamen. The length and difficulties of this voyage could not be compared with any other; and therefore no vessels of less than four or five hundred tons burthen ought to encounter the seas of Cape Horn and North America. In strictness, they might, perhaps, be rather less, were their sole object to procure furs in exchange for the articles of barter they would carry out. But it should be remarked, that the expence of freighting a vessel of 300 tons is very little less than that employed in one of 500, since each would require an excellent commander, and an equal number of officers. The only difference would, therefore, consist in seven or eight sailors more or less; and as it has been suggested, it will be necessary to require of the East-India Company to freight them home on its own account; it will then make a considerable difference to the owners to have five hundred tons of freight instead of three hundred.

To sum up the various heads of this paper, we ought not yet in my opinion to think of establishing a factory, and the present is not even the time to form an exclusive company for this trade. Still less ought it to be entrusted to the East India Company; for they would either wholly neglect it, or conduct it very ill, and thus would disgust the government with the scheme. But it would be most consistent with wisdom, to engage one of our commercial towns to make a trial of three voyages, securing them a freight from China, as I have already mentioned. Government

ment may be assured, that such ships would find a great quantity of sea otter skins, between Nootka Sound and Baie des Français; but they should only run into very open bays, whence it would be easy to get out, because by putting into a greater number of places, their trade would be more abundant.

The skins procured the first year will be dirty and injured, but in succeeding years, they will probably be obtained in better condition.

Iron in bars of four fingers broad, and six or eight lines thick, common iron hatchets, and large blue or red beads would be the best articles of barter; and a cargo of this kind would incur but a very small expence in the outfit*.

The chart I have sent to the minister of marine, would be of service to them. It is so exact, that few charts that have been constructed in haste while under sail, running along the coast, will bear a comparison with it. The currents seem to be the principal danger of this voyage, and it will be necessary to avoid the narrow harbours, where they are very rapid. With this precaution, I have no doubt, those who conduct the barter will procure a great quantity of skins, particularly if they avoid all quarrels with the natives, and never attempt to reclaim the articles they may steal, which cannot be of any great importance.

This is all the information I have hitherto been able to obtain concerning this commerce. The whole of my reasoning is founded on my knowledge of America alone, for I am not yet acquainted with the market of China. Of this I shall be better informed at my departure from Macao, and shall be

* It would be proper to send on board a few barrels of coals, a forge, and a smith, to work the bar iron into any shape the Indians may desire.

able to obtain every instruction necessary, by the time I leave Kamtschatka *.

(Signed) LA PÉROUSE.

At sea, during the run from Monterey to Macao,
December, 1786.

*Estimate of the Otter and Beaver Skins, purchased at
Port des Français, on the N. W. Coast of America,
by the Bouffole and Astrolabe frigates.*

OTTERS.

The otter skins were divided into three lots, viz.

Furs in skins.

Furs on woollen cloth, or *ponchos*.

And *passe-pois*, or very narrow strips.

The first lot was divided into three qualities :

1st, Virgin skins, and those of which the hair is clean, and not mixed.

2dly, Those which are a little damaged, but yet fine.

3dly, Those of which the hair is mixed and dirty, and which are only fit to be fulled, and made into

* The particulars which Captain Cook has given us concerning the fur trade, and the enormous profit he acquired in his trial of it, must necessarily have excited the cupidity of ship owners and merchants. But it was easy to foresee, that a competitor in the market would very greatly reduce their value in China, while, on the other hand, the savages would increase their demands, when Europeans should successively arrive in their countries, and endeavour to obtain a decided preference in the purchase.

Since Cook's last voyage, the English have made several expeditions to the north-west coast of America ; the accounts of which have been published. Those of our readers who may desire to obtain further information upon the subject, may read Meares's voyage, and that of Dixon, comparing them with what is said by la Pérouse, and by Cook in his third voyage — *French Editor*.

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felts by the latter. It will be useful to bring a great quantity of these home to France, in order to make several experiments upon them.

These furs, whether in skins, or on woollen cloth, and those of the beaver, have been all reduced to square feet, and valued, piece by piece, according to their different qualities and classes.

The *passé-poils* were sorted according to their degrees of fineness and colour, and valued very low, according to the price of minevers in France.

The furs of the first quality were divided into 11 sections, and then valued at different prices, according to their sizes.

The articles, forming each subdivision, have been estimated at three prices, according to the accounts I have read and extracted from Coxe's journal of the Russian discoveries, Capt. Cook's voyages, and what I learned myself at Monterey.

The first price is the lowest, at which, according to these observations, I think the skins can be sold.

The second is the medium price, according to the accounts the Spaniards at Monterey gave us of their sales.

The third is estimated by the account of Capt. Cook.

The first subdivision, from the smallest size, to that of two feet inclusively, have been rated,

For the lowest price, at five piastres per square foot, making 30 piastres for an entire skin of six square feet, or three feet by two, which is one of the largest sizes.

For the Monterey price, at seven piastres and a half, making 45 piastres the entire skin.

For the price stated by Cook, at 10 piastres, making 60 piastres the skin. This latter price appears too high, and that which we must demand, though we take less.

This

This method has been pursued relative to all the other sections, and generally for each different article of this kind.

BEAVERS.

It will be seen, from the statement of the furs exported by the English from Hudson's Bay to Petersburg, and by the Russians to Kiatcha, that the beaver of Hudson's Bay is worth, at Kiatcha, from seven to 20 roubles per skin, (the rouble being worth four livres, 10 sous of French money). This lowest price of seven roubles makes, therefore, 28 livres 10 sous.

I have valued the beaver skins according to their common size of 20 by 18 inches, or two and a half square feet, at

Half a piastre for the lowest price per square foot, gives six or seven livres the skin :

One piastre for the second price, making 13 or 14 livres the skin :

Two piastres for the third price, making from 26 to 30 livres the skin.

From these data, we derive the following calculations : 3231 furs, of all sizes and qualities, which we purchased, are estimated at the lowest at 41,063 piastres 1-8th, or 221,740 livres, 17 sous, 6 deniers, French money. At the mean price of Monterey, 63,586 piastres $\frac{1}{4}$, or 343,365 livres, 15 sous, French money. And lastly, at Capt. Cook's price, 84,151 piastres, or 454,415 livres, 8 sous, French money.

EXTRACTS

*From the Correspondence of Mess. de la Pérouse de
Langle, and Lamanon with the Minister of Marine.*

FROM M. DE LA PÉROUSE.

SIR, Monterey, 14th Sept. 1786.

OUR ships have been received by the Spaniards like those of their own nation, and there is no possible assistance which they have not been lavish in providing for us. The clergy at the head of the missions have sent us vast quantities of every kind of provision, and, in return, I have presented them with a number of little articles for the Indians, which were put on board at Brest for that purpose, and will be to them of the greatest utility.

You are already informed that Monterey is not properly a colony, but only a post of about twenty Spaniards, maintained by the king of Spain, for the protection of the missionaries, who labour with the greatest success in the conversion of the savages; a system that will never deserve to be reproached for cruelties like those which stained the laurels of Columbus, and disgraced the reign of Isabella and Ferdinand.

Our biscuit is a little damaged, but our corn, flour, wine, &c. have kept so well, as to exceed our most sanguine hopes, and have contributed not a little to preserve our crews in good health. Our ships are in the best condition, but are very bad failers.

FROM M. DE LA PÉROUSE.

SIR, Monterey, Sept. 19, 1786.

MY dispatches having to traverse America by land, and pass through the city of Mexico, I dare not send you by this conveyance either the details of our voyage,

voyage, the charts we have constructed, or the numerous and accurate observations we have collected, to enable us to give you the most satisfactory accounts of the traffick for skins, and the part which the Spaniards design taking in it.

Their eyes are ever turned to this important branch of commerce, and the King has reserved to himself the right of purchase in the *presidios* of California. The most northern settlement of the Spanish factories furnishes annually 10,000 otter skins; and should these continue to find an advantageous market at China, it will be easy for Spain to procure even 50,000, and thus destroy the commerce of the Russians with China.

They now begin to find sea otters on the west coast of California, as low as 28° N. lat. in equal abundance, but of an inferior quality to those further to the northward.

On the coast of America we have made discoveries that escaped former navigators, and taken possession of a port well adapted for the establishment of a factory, and perfectly defensible by only 100 men against very considerable forces.

Otters are so plentiful there, that in a fortnight we collected a thousand skins. These will be sold at China for the benefit of the sailors, for our officers and passengers look for glory alone as the reward of the fatigues and dangers of such a voyage.

That part of the coast lying between 50° and 55° of north lat. which was not seen by Cook, will also form a very interesting part of our narrative. We have indeed made important discoveries, but the accounts of them cannot be detailed in cyphers, and you will therefore receive them from China by a French ship, together with the memoirs relative to the political and secret objects of my instructions concerning the commerce that might be carried on upon the coast of America.

FROM

FROM M. DE LA PÉROUSE.

SIR,

Monterey, 19th Sept. 1786.

I HAVE already had the honour to inform you, that strictly following my instructions, I have deemed it necessary to make use of the permission given me to change my plan, and begin with the north-west coast of America. I may venture to say my operations have been attended with the completest success. In the course of 14 months we have doubled Cape Horn, and run to the extremity of America as far as Mount St. Elias; we have explored this coast with the greatest care, and arrived at Monterey the 15th of September. The orders of the King of Spain had reached this place before us, and it would be impossible, even in our own colonies, to meet with a better reception.

I ought also to inform you, that we have put into several islands of the South-sea which had excited curiosity, and have run on the parallel of the Sandwich Islands, 500 leagues from east to west, for the purpose of elucidating several important points of geography. I anchored only 24 hours at the island of Mowee, and passed through a new channel which the English had no opportunity of visiting.

I shall be at Kamtschatka early in the month of August, and at the Aleutian Islands about the end of the same month. It will be proper to defer exploring these islands till after I have been at Kamtschatka, that I may know what the Russians have left undone, and thus be the better able to complete and add something to their discoveries.

From the Aleutian Islands I shall sail without losing a moment, for the southern hemisphere, to execute the orders I have received. No voyage, I may venture to say, was ever undertaken on so vast a plan. We have already passed a full year under sail,
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Sept. 1786.

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and yet, during our short intervals of staying in port, we have made very novel and interesting discoveries. You will learn with pleasure that to this hour not a drop of Indian blood has been spilt, nor one man sick on board the *Bouffole*: and a servant whom the *Astrolabe* has lost, died of a consumption, which he could not have survived to this time even in France. We should be of all navigators the happiest but for one extreme misfortune we have met with. That disaster I shall spare myself the pain of again relating here, and intreat you to receive with kindness the extract from my journal which I send you; requesting at the same time that a copy of it may be transmitted to the families of the officers who have so unfortunately perished. On that fatal occasion I lost the only relation I had in the navy. Of all who have sailed with me, this young man seemed to possess the greatest qualifications for his profession. He held in my bosom the place of a son, and never in my life did I experience an affliction equal to his loss. Mess. de la Bord, de Pierrevert, and de Flassan, were also officers of great merit.

This disaster obliged me to make use of the remaining commission of *lieutenant de frégate*, in favour of M. de Broudou, my wife's brother, who embarked as a volunteer, and whose conduct has given me great satisfaction. I have dated the commission the first of August, 1786. I have also appointed M. Darbaud, a young man of very distinguished talents, to act as *enseigne*.

All the officers, men of science, and artists, enjoy the most perfect health, and perform their duty with the greatest punctuality.

FROM M. DE LANGLE.

SIR,

Monterey, Sept. 22, 1786.

I CAN add nothing to the account which M. de la Pérouse will give you of our voyage, because, since our departure from Brest, I have not lost sight of his ship for a single moment. Destined to participate his fate, I have shared his misfortunes. Through excess of courage and humanity, Messrs. La Borde, Marchainville, Bouterwilliers and Flassan perished on the 13th July, 1786—ending their career of life at the very moment when they were qualified to perform the most distinguished services. The two former in particular were animated with that zeal, perseverance, and spirit of research so necessary in the conduct of an expedition like ours, and yet wanted not the presence of mind and talent calculated to extricate them from situations of the greatest difficulty and embarrassment. Alas! In these I have lost two friends whose advice has often been serviceable to me. Misfortune, however, has not in the least relaxed the zeal of the five remaining officers, who, on the contrary, have never been discouraged by the laborious nature of their service, ever more difficult in harbour than at sea. The good understanding that reigns among them, the lively interest they take in the success of our voyage, are the surest protection of my ship; and the laudable spirit of curiosity which animates their bosom, prevents them from bestowing one thought of premature anxiety on their return to France.

M. de Monti is an excellent seaman, and a model of prudence, of foresight and of firmness.

M. de Vanjuas adds to these qualifications a store of knowledge, and an understanding by no means common.

M. Daigremont, who has acquired great experience

ence in naval affairs, is courageous and enterprising. He fully answers the expectations generally formed of a lively and dissipated youth. He is approaching to maturity, which will soon render him capable of performing distinguished services, for he possesses judgment and resolution.

M. de Blondela, a very patient, prudent, and industrious officer, is extremely well acquainted with his profession. He employs his leisure time in constructing charts, and making very curious and pleasing designs. M. de la Pérouse having appointed him on the 13th July, to fill the place of *capitaine de brûlot*, I hope you will be pleased to promote him to that rank, which he so well deserves.

M. de Lauriston, whom M. de la Pérouse has promoted to the rank of *enseigne*, is a person of distinguished merit, has acquired a great knowledge of seamanship, and possesses such indefatigable zeal for astronomical observations, that I rely implicitly on him for every thing relating to that branch of our duty. Equally inquisitive and ardent for discovery with his companions, he is no less indifferent than them to his return to France.

I have also the greatest praise to bestow on the friendly assistance of M. de Lesseps, M. de la Martinière, Father Receveur, and M. Dufresne.

The loss of four of the best marines, and three excellent sailors of my crew, has not produced any discouragement among the rest; and consequently, after the disaster of the 13th July, I promised them a gratuity of two months' pay.

François Lamare, my boatswain, is a man of great merit. Should he continue to persevere in his present good conduct, I shall give him, in the course of the voyage, the warrant of subsistence (*brevet d'entretien*) which I have received for him.

My boatswain certainly deserves this reward; but finding it would probably excite jealousy, I have

thought it necessary to promise Mathurin Léon, my master, Robert-Marie le Gal, my chief carpenter, and Jean-François Paul, my chief caulker, most pressing to solicit from you permission to fix the date of their subsistence. And I must beg you to accelerate that of Jean Groffet, who, though younger than them, possesses no less capacity and intelligence. To these promises I am indebted perhaps for the good understanding that reigns on board my ship; and to the good example of these men may be attributed the gaiety and willingness that prevails among the crew.

Gaulin, *capitaine d'armes*, who performs the duty of gunner, also deserves to be distinguished; but the means I possess of augmenting his pay, which at present is very moderate, will be a sufficient recompence.

The rate of the time-keeper, No. 18, has been astonishingly regular, and, in consequence, I believe the longitude of all the places we have visited since our departure from La Conception, are determined with the most perfect exactness.

The rate of the time-keeper, No. 27, though not so regular as the former, is yet as much so as might be expected, and what M. Berthoud pronounced it would be. In determining the longitude by the distance between the sun and moon, we constantly prefer the reflective circles, invented by M. de Borda*, to sextants. There has always been so great a con-

* This instrument was originally invented by Tobias Meyer, a celebrated astronomer of Gottingen, but much improved by the Chevalier de Borda, and M. J. H. de Magellan. It was used by the French in their part of the operation for determining the difference between the meridians of Paris and Greenwich. The circular rim is divided into 720 degrees, each degree into three equal parts, and the division carried to minutes by means of the index scale, as in other instruments. It is intended to obviate the errors arising from the sextant, and particularly the inaccuracies of the division on the limb.—*Translator*.

formity in the results obtained by Messrs. de Vaujuas, de Lauriston and myself, from these instruments, that excepting a few defects in the execution of them, I think them the most perfect of any for determining longitudes at sea. Father Receveur and four of my master's mates, are also well instructed in taking these observations.

Among the number of the last, is one Brossard; I have his instruction at heart, and do not wish him to be removed from his present rank 'till our return to the Isle of France, when I think he will be prepared to perform the duty of a lieutenant. He is at present the master's first mate; but his understanding and integrity interest me in his behalf, and make me desirous of raising him from that humble station in which he was born, so much below what his conduct and behaviour justly merit.

Don Bertrand Joseph Martinez, who commanded the Spanish frigate *La Princesa*, from San-Blas, who was anchored in the Bay of Monterey before our arrival here, anticipated our wants with indefatigable zeal, and rendered us every service in his power. He desired me to request you to recommend him to the minister of his country; and I should be happy to have any opportunity of contributing to his promotion.

I leave this place without having one man sick on board; but the cares of M. Levaux, my surgeon, were unable to save the servant of M. de Vaujuas, who left Brest with a consumption, which terminated his days on the 11th of August, 1786. The buck-wheat as well as the other sort taken on board at Brest, are in perfect preservation. Some mills we have constructed, and which are worked by two men, when there is little wind, supply each twenty pounds weight of meal an hour. To these mills we have adapted stones of the kind used by M. de Suffren in his last voyage. I left one of them with the monks at the mission of Monterey.

FROM M. DE LAMANON.

SIR, *In the Chinese Seas, 1st Jan. 1787.*

AFTER a voyage of 10,000 leagues, I could wish to transmit you some account of our discoveries in natural history, and of my own individual labours. But the subjects of which I am to treat, are so linked together, it would be necessary to send you whole volumes. On my part, nothing has been neglected to concur in your designs. My inquiries have reached from the sand, which the lead brings from the bottom of the ocean, to every mountain I have been able to ascend. I have made collections and descriptions of fish, shells, and insects, and of animals, to the number of which already known, I hope considerably to add, and thus to increase our knowledge of animated beings. The natural history of the sea, of the earth, of the atmosphere, alternately engage my attention. If we are not the first circumnavigators whose object has been the improvement of science, at least the English will now no longer enjoy alone the honourable privilege of thus labouring for the general good of mankind. It only remained for you, Sir, after having concluded an advantageous peace with that nation, to make France its rival in the glory of being useful to all mankind.

At the commencement of the last century* our neighbours, led by avarice in search of gold, discovered a new world. In the present age, France has determined, by accurate measurements, the figure and dimensions of the earth. The English have destroyed the chimera of a north-west passage,

* America was discovered a century before this time. Columbus returned from the discovery of Hispaniola, to the Port of Palos, on the 15th March, 1493. The continent of America was discovered soon after that period.—*Translator.*

which

which they had themselves before contributed to support, and have commenced that general investigation of the globe, which, under your auspices, we are now continuing, and future ages will, perhaps, one day complete. But the great distinction by which this voyage will be ever signalized, and the French nation be rendered glorious in the eyes of the present age, of philosophers, and of all posterity, is that we have visited nations reputed barbarous, without shedding a drop of blood. Our voyage, it is true, is not yet finished; but I know the sentiments of our commander, and how well his views are seconded. In a moment of disturbance and danger, occasioned by mistake, "Take your musquets," said he, "but do not charge them;" and all was pacified by his prudence. To the merit of a skilful navigator, and an able warrior, M. de la Pérouse adds another much nearer to his heart, that of being, in the remotest regions of the globe, a worthy representative of the virtues and humanity of his nation. Our voyage will prove to the whole world that Frenchmen are virtuous, and that Man, in a state of nature, is not a savage.

I have extracted from my journals a few memoirs, addressed to the Academy of Sciences; and I intreat you, Sir, to transmit them to M. de Condorcet, perpetual secretary to that body, with whom I correspond. At the same time I have taken the liberty of enclosing a few letters in your cover, persuaded that by this means they will arrive with greater certainty.

FROM M. DE LA PÉROUSE.

SIR,

Macao, January 3, 1787.

ALL the charts I now send you have been constructed by M. Bernizet, a young man of great skill and

and accuracy. Though all the officers have co-operated in the astronomical observations, it is but just, they should go under the name of M. Dagelet, who had the direction of them. Besides, it is not sufficient they deserve, it is necessary they should obtain the confidence of navigators; and for that purpose the name of a professional astronomer, and a member of the Academy of Sciences, are best calculated to attain that end.

M. Dagelet, and all the officers, have also taken bearings; but M. Bernizet has been chiefly occupied in that operation, without interruption. He has registered and compared them, rejecting such as did not form a connection; and therefore I may consider all the trigonometrical operations as justly belonging to this geographer, whose talents are far beyond the opinion entertained of him when he came on board. He is perfectly well acquainted with every branch of the mathematics necessary for his profession; paints, draws and takes plans with the greatest facility. I am convinced his talents would render him extremely useful to a general, by land, whom he might serve in character of aid-de-camp; he might also be highly useful in the navy, and it would be a great satisfaction to me to procure him a place on his return.

The Astrolabe has, on all occasions, made the same observations, both astronomical and trigonometrical, as the Boussole. M. de Langle himself observed the distances and horary angles, with Messrs. de Vaujuas and de Lauriston, while he had in his *etat-major*, M. de Blondela, *lieutenant de frégate*, who accurately performed precisely the same office as M. Bernizet. I would send you the charts of the Astrolabe, did I not find, on comparing them with ours, so great a resemblance that it would be useless; but the identity of the results given by the two ships, is a proof of the accuracy of our operations.

I have

I have the honour to send you two drawings by M. de Blondela, not inferior to any of the four by M. Duché. The latter represents the dress and appearance of different nations with the greatest accuracy. His drawing of Easter Island gives a much truer idea of its monuments than the engraving of Mr. Hodges; and as they appear to have excited great curiosity, I desired M. Bernizet to draw up an exact plan of them. I have also, in my narrative, endeavoured to complete the picture of these islanders, who will be little visited by Europeans, because their country affords no supplies for navigators. The three other drawings, by M. Duché, are also very correct, but they are only a small specimen of his industry; he has twenty others remaining in his port folio.

Young M. Prevost has drawn all the birds, fishes, and shells, and I thought it a favour due to his zealous exertions, to send you three of his drawings of birds.

The Spanish charts of the great Pacific Ocean, which I have the honour to send you, and on which I have marked my track from Monterey to China, is detestable. I have only added it to the others, to prove that the knowledge of this vast sea has been stationary for these two centuries, arising from the galleons from Manilla constantly pursuing the same track, without deviating from it so much as ten leagues.

FROM M. DE LA PÉROUSE.

SIR,

Macao, Jan. 3d, 1787.

I HAVE the honour to send you the narrative of my voyage, complete as far as Macao, with tables of our daily course. To these I have added plans of the coasts

I have

coasts along which we ranged, of *Port des Français*, of which we have taken possession, of the various islands we have visited, of *Isle Necker*, and *la Basse des Frégates Françaises*, where we experienced so much danger, and I have marked the track of the two ships on the general chart, accompanying this dispatch. It passes over the pretended situation of several islands, which have no existence, and needlessly occupy places on maps, while in the corresponding parts of the earth there is no land.

Our chart of the north-west coast of America, is certainly the most accurate that has yet been constructed, and leaves nothing to be added but minute details, which must be the work of time, and a long course of navigation.

We have surveyed the entrance of the archipelago of St. Lazarus, if it can still retain that name, and determined its true position in latitude and longitude, as well as its width from east to west, and 20 leagues of its depth to the northward. The season, already far advanced, the shortness of the days, and the ultimate plan of my voyage did not permit me to penetrate further into this labyrinth; for which, two or three months would have been requisite, on account of the precautions necessary in such surveys, the result of which may gratify curiosity, but can never be interesting to navigation, nor of any utility to France. I should not, however, have hesitated to complete this survey, had I arrived at the entrance of the archipelago in the month of June; but at the end of August, on the eve of the equinox, with nights of twelve hours, and almost continual fogs, the difficulties of the enterprize would doubtless have been insurmountable, and without affording any advantage to the science of geography, I should have endangered the future success of my voyage.

You will remark, with satisfaction, that out of nearly 18 months since our departure, we have passed

15 at sen, and only three in the different ports of our destination. Our care and attention have been so constantly successful, that we have had neither sickness nor scurvy among us. But though, at the moment I have the honour of writing, we have traversed over a distance of 10,000 leagues, we have not yet completed a third part of our voyage, and I dare not flatter myself with the expectation of equal good fortune, during the rest of my course, if indeed we can ever call ourselves fortunate, after the terrible disaster that befel us at *Port des Français*, and of which I sent you an account from Monterey. Since all my precaution could not prevent this stroke of misfortune, it is but too clearly proved, that all attempts are in vain to avoid our destined fate.

I have been scrupulously attentive not to change the names given by Captain Cook to the different capes he surveyed; but it will not escape you, that as we examined the coast of America much more closely than that celebrated navigator, we have been authorised in giving names to ports, bays, islands, and entrances, which he never supposed even to exist; and custom permits me to select those appellations from persons whose names being engraved on my heart, ever present themselves to my recollection with the liveliest pleasure.

It is my ardent wish, Sir, that your occupations may not prevent you from running over the different chapters of my narrative, that you may judge with what strictness I have endeavoured to obey every article of my instructions. I have visited Easter Island, the pretended place of islands eastward of the Sandwich Isles, which, however, have no existence; the island of Mowee, one of the Sandwich Isles, on which Captain Cook did not land, and the north-west coast of America from Mount St. Elias to Nootka: but from Nootka to Monterey, I have only surveyed

veyed the points which Captain Cook was not able to lay down, and were therefore dotted on the charts.

Concerning the Spanish settlements, I have procured the information required of me in my private instructions; and have the honour herewith, to transmit you a paper on that subject.

I have traversed the great Pacific Ocean on a parallel one hundred and sixty leagues distant from that of other navigators; I have discovered *l'Isle Necker*, and *la Basse des Frégates Françaises*; by my track I have proved that the islands of Gorta, Deserta la Mira, and Garden Island* have no existence; and I have visited, according to my instructions, one of the islands to the northward of the Marianas, whence I am now arrived in China.

In the beginning of the season I shall set sail to navigate between the coast of this empire, of Corea, of Tartary, and the isles of Japan and the Kuriles. I shall then put into Kamtschatka, and on leaving that port shall visit the Aleutian Islands, and those laid down to the eastward of Japan, of which, however, the existence is more than doubtful.

It will afterwards only remain for me to sail towards the southern hemisphere, not forgetting to the northward of the line the Caroline Islands, which I am enjoined to visit. It is only from Kamtschatka that it will be possible for me to inform you of the further plan of my voyage, because I cannot completely determine it till I know with certitude the precise time of my quitting the roads of Siberia; and as yet I am ignorant of the time I shall be obliged to consume in my navigation along the coast of Tartary. The south-west monsoon, which is met with to the southward of the line at the beginning of November, will not permit me to indulge, at present, in calculations which the least delay may render nugatory;

* Vide Volume I. Page 242.—*French Editor.*

tory; but if I foresee a possibility of passing through Endeavour Strait before the commencement of this monsoon, my first course will be round New Holland. If not I shall begin with Cook's Bay, in New Zealand, the southern part of New Caledonia, and the Arfacides and Caroline Islands; then passing through the Moluccas with the north-east monsoon, I shall survey New Holland, whence I shall proceed to the Isle of France.

However vast this plan, it does not exceed the zeal of any one engaged in this expedition. The greatest difficulty is to complete the work within four years, and perhaps it will be impossible to make our ships, our rigging, and our provision last so long. Whatever may be the event, I shall make every effort to obey my instructions most strictly. Yet I shall be able to spend but a short time in the different places where we touch, and this long continuance at sea will not be very agreeable either to the botanists or mineralogists, who on shore alone can find opportunities for the exercise of their skill in the sciences they cultivate.

FROM M. DE LA MARTINIERE.

Macao, Jan. 9, 1787.

"WE have now completed nearly half our voyage, after having touched successively at Madeira, Teneriff, St. Catherine in Brazil, la Conception in Chili, Easter Island, the Sandwich Islands, the north-west coast of America, and Monterey in California."

Here M. de la Martinière describes the plants he found in the different places at which they touched. Among those he observed in the island of Madeira, he mentions the *dracæna draco*.

"It is become," he says, "very rare;" and adds, "the idea we have of this plant from the miserable samples we cultivate in our green-houses, falls greatly

tory;

ly below that we receive by seeing it in its native country. I have found three, in particular, whose trunks were six or seven feet high, and four and a half or five feet in diameter. The principal branches, to the number of twelve or fifteen, are as large as a man's body, and dividing themselves always into two, and sometimes, though rarely, into three, tower upwards rather obliquely, to the height of forty or fifty feet, including the seven feet of the trunk. The leaves occupy only the extremity of the branches, where they are disposed alternately, and form a cluster. This tree delights the eye with the most perfect regularity of form, and has the appearance of being trimmed every day by the hand of the gardener."

From the island of Medeira our navigators passed to that of Teneriff, and M. de la Martinière observed between the port of Orotava and the last cone of the peak of Teneriff, five different species of plants.

"I should be tempted to believe," he says, "this difference is only owing to the greater or less decomposition of the basalt, which necessarily become vegetative earth; consequently we are not surprised to see the plain of Orotava covered with vines and various fruit trees, because the rains and melted snow carry down earth of the finest kind, and the best adapted to vegetation."

"Besides several plants natural to this island, and of which the celebrated Maffon has given an exact description, we find the shrub called *spartium supranulium*, which is very well described in the supplement to Linnæus. This is the last shrub that grows toward the highest elevation of this great mountain. It vegetates, however, with such strength, that some are not unfrequently met with, whose branches spread to near eighty feet in circumference, and rise seven or eight feet high. It bears an immense quantity of flowers, which are probably very attractive to the bees, though at a very considerable height for such feeble

feeble animals to reach. I was led to this conjecture by finding, in the crater of this famous peak, several vents, in the mouths of which were seen small quantities of bees half consumed. They were probably suffocated by the sulphureous vapours from the vent, after being attracted thither by the gentle warmth this apparent asylum offered against the cold and impetuosity of the winds, that surprized them at so great a distance from their little homes.

"Our respiration was here by no means difficult, except when we were exposed to the immediate action of the sulphureous vapours, disengaged from the crater by a great number of vents, at the bottom of which we observed a great quantity of sulphur, in needles and very beautiful chrystals. Volatile alkali appeared to possess its ordinary strength there. In our descent from the peak, we took the road leading to the small town of Gouima; in consequence of which I had the pleasure of seeing many other small volcanos, and several small shrubs I had not found in any other part of the island, such as the *cytisus proliferus*, *cistus monspeliensis*, *cistus villosus*, *erica arborea*, and the *pinus tæda*, in considerable quantities."

On the 30th of August our navigators quitted this island. Their next port was in the island of Saint Catharine, on the coast of Brazil. This place presents a vast field for every research of natural history; but the rains that prevailed during the stay of M. de la Martinière prevented his devoting himself to it so much as he wished. More fortunate at Chili, where M. Dombay made a long residence, greatly to the advantage of the science of botany; M. de la Martinière, being then unacquainted with the labours that learned man had there pursued, applied himself, like the former, to correct the errors which Father Feuillée has committed in his *Histoire Medicinale des Plantes*. However, in recording these errors, M. de la Martinière confesses the work of that priest has great

great merit, and bespeaks him a man of great information. On the subject of the *lich*, a tree whose shade, according to Father Feuillée and other botanists, produces involuntary sleep, and occasions an insupportable itching, M. de la Martinière expresses himself thus :

"The account he has left of the pernicious quality of the *lich* (vol. iii. page 33, tab. 33) deserves, I think, some restrictions, according to my experience. Being one day on an excursion, accompanied by one of our foldiers, we were joined by two Spanish peasants, who took pleasure in following us, and telling us the names of the places and different plants we met with." Coming to several *lich*, which shaded the road we were passing, "There," said I, pointing to it, "is the *lich*;" and they immediately confirmed me, by giving it the same appellation. I then made signs to them that it was dangerous to touch; when one of them, to undeceive me, gathered a handful of the leaves, and chewed them in his mouth for a very long time, till they were quite reduced to small fragments. However, he signified to me, that if I slept under the tree, I should feel an itching all over my body, and be obliged to scratch myself; an action he imitated with the greater facility, as from their uncleanness it forms a part of their constant occupation. Encouraged, therefore, by his example, we gathered a handful of the fruit at the ends of the branches, from which neither of us experienced any bad effect. It is therefore possible that this quality of the tree may be owing to a species of extremely small reddish insect I observed on it; but this is given merely as a conjecture.

FROM

FROM M. DE LA PÉROUSE.

SIR, *Macao, 18th Jan. 1787.*

A particular account of all the officers and passengers of the division is due to you; and, as I have much to say to their credit, it is a duty I shall perform with no small satisfaction to myself.

M. de Langle is an excellent officer, who with great talents in his profession combines a firm and unshaken character. His exactitude in following me has been so great, that we have never been out of hail, except when I ordered him to keep at a distance, and make sail a-head, his ship being a much better sailer than mine.

The return of M. Monge has been no injury to the astronomical observations on board the *Astrolabe*, for M. de Langle is equally as good a naval astronomer as the professor. He has been perfectly well seconded by M. de Vaujuas, a well-informed officer, and has trained to these observations M. de Lauriston, who is in all respects an accomplished young man, as well in regard to information as in his personal character, zeal, and attachment to the service.

I have authorized M. de Langle to inform you himself of his opinion regarding the talents, character, and conduct of each of his officers and passengers. I know him to be incapable of prejudice or partiality, and you will learn the truth from him without disguise.

M. de Clonard, my second captain, is an officer of great merit, who, in addition to all the talents of his profession, possesses a character of punctuality, zeal, honour, and love of glory, which render him, in my eyes, one of the most valuable men with whom I have ever been acquainted. In conformity with your orders, I gave him his commission of *capitaine de vaisseau* on the 1st January, 1787, to take his seniority

FROM

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niority from that date, and rank with other captains, as mentioned in the letter you did me the honour to write me from Versailles, the 23d June, 1785.

M. Boutin is full of intelligence and talents; his activity is indefatigable, and he possesses a calm firmness in the hour of danger that exceeds every panegyric. To this quality I owe the preservation of the jolly-boat, which passed through the breakers of *Port des Français*, on that fatal day when our unfortunate companions were lost. On the same day I should have made use of the power you have given me, by your letter dated 23d June, of antedating or postponing the favours of his Majesty. A recompence was certainly due to an officer to whom I am indebted for the preservation of six men, and who had himself just escaped from such imminent danger. But our affliction was so great, that I did not think of conferring that favour upon him till the 1st of January, 1787, that being the time fixed for the date of a similar favour to M. de Vaujuas. I have, therefore, advanced M. Boutin's promotion only six months.

It is painful to me to recall to mind the loss we have suffered, while I have the honour to represent to you that the death of six officers renders the greater part of the honours you were pleased to confer on those of our division useless.

Messrs. Colinet, Saint Céran, Darbaud, Mouton, and Broudou, to whom I have given the two commissions of *lieutenant de frégate*, are zealous and active, and perform their duty perfectly well. Their services are very frequently required, every boat being constantly commanded by an officer. The number of them would even have been insufficient without the two promotions I conferred.

FROM

FROM M. DE LANGLE.

SIR, *Macao, 11th January, 1787.*

THE *Astrolabe's* voyage has been very successful during her passage from Monterey to Macao. I have not lost a single man, nor even had one sick; and the ship will be in a state to continue the voyage when her rigging and sails have been repaired.

The ardour and alacrity of my crew have not relaxed for a single instant; and we shall continue, with the greatest pleasure, to contribute to the success of the expedition of M. de la Pérouse.

The firmness, good sense and foresight of M. de Monti, contribute to the happiness of all his associates, and his talents inspire me with the greatest confidence.

In the course of my service, I have never met with a naval officer equally accomplished with M. de Vaujuas.

M. Daigremont has great judgment and firmness of mind. He is engaged in the astronomical observations, and will pursue them with great success.

M. de Blondela is an excellent officer, of most exemplary good sense and firmness. He employs his leisure in drawing plans of the different roads, which he executes with great taste and accuracy.

The ardour of M. de Lauriston, in the pursuit of every kind of knowledge has never relaxed. He is at present an excellent officer, and promises fair to make great progress in astronomy. I rely on him for every thing relative to that science.

It is to the talents of these five officers, and the harmony that reigns among them, that I owe the strict regularity with which the *Astrolabe* has constantly kept in sight of the *Bouffole*, even during the night, and when enveloped in fogs. They take so much interest in the safety and preservation of the

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ship,

FROM

ship, and the success of the voyage, that I find myself at present less occupied than any of them.

I should be completely happy if they may be permitted to receive those honours at the Isle of France, to which you justly expected they would become entitled, on their return.

M. de Vaujuas, who was at the head of the *enseignes* when you made him lieutenant, and who was not blessed with a patrimony, has, I think, just pretensions to the pension of 800 livres granted to the late M. d'Escures.

M. de Lauriston also deserves, I think, to rank among the *enseignes*, from the 13th July, 1786, the period at which M. de la Pérouse gave him the commission.

I cannot sufficiently praise the amenity of disposition and other good qualities of M. de Lesseps.

Father Receveur performs his functions with great propriety, and is possessed of good sense, joined with an agreeable disposition. At sea he is occupied in meteorological and astronomical observations; and in harbour, with every thing relative to natural history.

M. de la Martinière applies to botany with great ardour.

M. Dufresne has been very useful by his purchases of sea otter skins, and has taken great care of their preservation and sale: as he is desirous of returning to France, and I consider him no longer useful to us, M. de la Pérouse has granted him permission to depart.

I have great encomiums to bestow on M. Lavaux, my chief surgeon, and M. Guillou, his mate, who have contributed by their care to the good health of my ship's company. At present they have fortunately much leisure, which they employ, when in port, in making observations in natural history and botany, and collections for the King's cabinet.

I have

I have to entreat your favour in behalf of M. Broslard, who, after serving forty months as a volunteer, on board several ships, embarked in the *Astrolabe* as assistant master's mate. He has done the duty of first master's mate, from the 3d July, 1786, with a great deal of zeal and intelligence. I entreat you to send him, at the Isle of France, a lieutenant's commission.

Permit me to recommend to you my master, gunner, carpenter, sail-maker, and caulker. They are old servants, who have afforded proofs of their ability and steadiness, and contributed much to the gaiety that reigns on board my ship, and the harmony that prevails among every individual. I beseech you to grant them their subsistence. I do not speak of my boatswain, because I shall give him his warrant of subsistence, if he continues to conduct himself with as much steadiness and propriety as he has hitherto shewn.

M. de Bellegarde has been removed from the *Marquis de Castries*, a ship armed en flûte, to the *Astrolabe*. He is a person of whom M. de Richery has spoken with great praise. He is *garde de la marine*.

FROM M. DE LA PÉROUSE.

SIR,

Macao, 2d February, 1787.

I HAVE often occupied your attention with our furs; I even added they were sold; I had reason to believe so, for the bargain was concluded; but the difficulties made by the purchasers at the time of delivery, have broken off the contract. For a moment, I proposed to bring them home to France, where I was persuaded they would find a better and more certain market than at China. But reflecting that my return to Europe is yet far distant, I accepted the obliging offer of M. Elitockenstrom, Director of the Swedish East-India Company, who has taken charge

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of

of them, and engaged to sell them for the profit of the sailors. He will send the produce to the Isle of France, where I propose to divide it among the crews, unless, by the orders you may send me at that colony, it may be otherwise disposed of. I shall not however arrive there within two years.

I cannot refrain from informing you, that the French nation has not, at this moment a single individual resident in China with whom I could entrust this trifling concern. The two supercargoes are madmen. The first, M. Thérein, has destroyed himself by blowing out his own brains; and M. Dumoulin, the second, has committed several acts of insanity, which in Europe would have caused him to be confined. He continues, however, entrusted with a charge of great importance, because no one thinks himself sufficiently authorized to displace him from his office. The necessary consequence of this state of affairs is, that every commercial nation, even Denmark and Sweden, have men of the greatest merit at Macao, while France alone has not a single individual of sufficient information to be a country justice of peace. I shall indulge myself in some remarks on this subject, when I have the honour to write you from Manilla.

I forgot to mention in my former letters, that I found, in the road of Macao, the *Marquis de Castries*, a ship armed en flûte, and commanded by M. de Richery, *enseigne de vaisseau*. As this ship was dispatched by Messrs. de Coffigny and d'Entrecasteaux, you will be informed by them of its mission; but I thought I might take on myself to discharge M. de Bellegarde from that ship, and employ him on board the *Astrolabe*, to replace the three officers who were lost on the coast of America, though he is only a *garde de la marine*.

FROM

FROM M. DE LA PÉROUSE.

SIR, *Manilla, 7th April, 1787.*

IF your various occupations have permitted you to cast your eyes over my narrative, I flatter myself you will perceive we have neglected nothing that could render our voyage interesting and useful. Our chart of the north-west coast of America, from Mount St. Elias to Monterey, will leave little to be desired by navigators. Our misfortune in *Baie des Français*, far from abating our ardour, has more strongly convinced us of the duties we owe to his Majesty and the nation, and we incessantly regret that it is our fate not to have the least hope of discovering a new continent, but that we can only expect to meet with a few islands of little importance, that will add nothing either to our knowledge or our commerce. You will have learned from the letters delivered you by M. Dufresne, that after having sold our skins, I proposed to sail for Manilla, there to take in provisions, overhaul our rigging, repair our rudder, and, in short, put ourselves in a situation to continue our voyage, by passing through the channel of Formosa, and ranging the western coasts of Japan and Tartary.

You will observe, Sir, that this part of our voyage has been generally deemed the most difficult; and if we are happy enough to explore these coasts with the same success as those of America, we shall have the honour of being the first who have effected this navigation, which is subject to the most violent storms, in narrow seas, entirely unknown, enveloped in fogs, probably interspersed with rocks, and rendered still more dangerous by rapid currents. All these difficulties, however, present themselves to our imagination only to excite our prudence, inflame our ardour, and fortify our courage.

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I left Macao the 6th February, and did not arrive at Cavita, in the bay of Manilla, till the 28th. The details of this passage are not a little interesting to navigation, and will add a chapter to our narrative.

I preferred the harbour of Cavita to the road of Manilla, because we are near an arsenal, and within reach of all supplies. These have, indeed, been heaped upon us with a lavish hand, and we are indebted to the orders of the government, and still more to the obliging care of M. Gonzales Carvagnal, intendant of the Philippines, that we shall leave Cavita as well provided with fresh provisions as at our departure from Brest. From Kamtschatka I shall have the honour of sending you, according to your orders, a particular account of Manilla, its resources, administration, new company, and governors, who by no means adopt the sentiments of the cabinet of Madrid towards our country. I must, however, make an exception in favour of the intendant, from whom we have received, in every instance, testimonies of extreme kindness, and who has never failed to go every day in person to all our purveyors, because he knew the tardy disposition of his countrymen, and was anxious that we might not lose a single day.

I quit this place the 8th of April, although the north-east monsoon will then still continue; but I shall be able to profit by the first change of wind to get to the northward. Before setting sail, I have seen the frigate, *La Subtile*, commanded by M. de la Croix de Caillies, arrive in the bay of Manilla. M. d'Entrecasteaux had dispatched this ship partly to inform me of his proceedings in China, that we might not run the risk of counteracting them, should our instructions enjoin us to navigate along the northern coasts of that empire.

M. d'Entrecasteaux will inform you of the revolt of the natives of Formosa, and of the offer of his services he felt it his duty to make to China for the reduction

duction of the rebels. His proposal was however not accepted, and I own I should have beheld with grief the navy of France lending its assistance to a government the most iniquitous and oppressive on earth. Without a crime I may offer up a prayer to heaven for the unhappy Formosans fighting in the cause of liberty.

I returned for answer to M. d'Entrecasteaux that my navigating along the coast of China would not in the least alarm that government; that I should not put out my colours, and would avoid giving them umbrage even in the slightest punctilio; adding, that although a good Frenchman at heart, I shall, in this country, assume the character of a citizen of the world, estranged from all the politics of Asia.

Previous to my departure from Brest, you addressed to me a memoir on Formosa, by M. Veillard. Judge of my astonishment when at Macao I found this M. Veillard had not the least knowledge of that country, that he could not answer a single question I put to him, and that his memoir is a mere copy of a manuscript in the hands of every European at Macao.

Though it is very foreign to the object of my voyage to concern myself with the servants of the French government at Canton, I should not do justice to the marked confidence you are pleased to repose in me, were I to leave you ignorant that Messrs. Veillard, Costar, de Guignes, and Dumoulin ought never to have been entrusted with the affairs of a great nation; and that I was obliged to apply to M. Elstockensfrom, President of the Swedish company, for all my wants.

I have the honour to send you a private letter on that subject.

FROM

FROM M. DE LA PÉROUSE.

SIR, *Manilla, 7th April, 1787.*

THE arrival of M. de la Croix de Castries at Manilla has been one of the most fortunate events of our voyage. He has very kindly offered to carry our furs to France, as I had the honour of mentioning to you before, and most obligingly to repair the losses we have sustained since our departure, by transferring four men and an officer out of his crew to each of our ships. In consequence of this arrangement, M. Guyet de la Villeneuve, *enseigne de vaisseau*, has been removed on board the *Bouffole*, and M. le Gobien, *garde de la marine*, to the *Astrolabe*. This recruit was very necessary, as three days ago we had the misfortune to lose M. Daigremont, one of the lieutenants on board the *Astrolabe*, who died of a dysentery; and the health of M. de Saint Cérans is so much impaired, that I am obliged to send him to the Isle of France for his recovery, all the surgeons having declared it impossible for him to proceed on the voyage. Thus, since our departure from Europe, our *etat-major* has suffered a diminution of no less than eight officers, seven of whom no longer exist, and the eighth affords little hopes of life. We have, however, in two years, lost only one officer and a servant by natural death. Both these belonged to the *Astrolabe*, whose crew, however, has enjoyed still more perfect health than that of the *Bouffole*.

FROM M. DE LA PÉROUSE.

SIR, *Awatscha, Sept. 10, 1787.*

I MAY venture to flatter myself you will receive with pleasure the particulars of our voyage from Manilla to Kamtschatka. Our ships have pursued a track

April, 1787.

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track absolutely new. They have passed between Corea and Japan, ranged the coast of Tartary to the neighbourhood of the river Segalien, explored the Oku-Jessô, and Jessô of the Japanese, and discovered a new strait for sailing out of the sea of Tartary. Our discoveries have been verified and connected with those of the Dutch, which the greater number of geographers began to reject, and the Russians found most advantageous to efface from their charts. Lastly, we have sailed out to the northward of the Company's land, whence we steered for Kamtschatka. Our ships anchored in the bay of Awatscha, on the 7th September, after a passage of 150 days, of which 140 were spent at sea; and we have not a sick man on board either of the ships, though we have sailed in the middle of the thickest fogs. Obligated to anchor or weigh every moment, with fatigues of which the voyages of Captain Cook perhaps afford but few examples, our care for the preservation of our crews has been hitherto attended with still greater success than on board the vessels of that celebrated navigator; for in twenty-six months, which have elapsed since our departure from Europe, not one person has died on board the *Boussôle*, nor have we one sick man on board either of our ships.

I recollect that on the delivery of my instructions you remarked how difficult and interesting would be this part of our navigation, since it cannot be of less importance to geography to know the limits of the continent we inhabit, than those of the southern continent or North America. We have been so fortunate as to present geographers with two islands equally large with those of Great Britain and Ireland, and to have decided the only geographical problem that remained to be resolved on the globe. Previous to this I could not venture to rank our voyage next in rank to that of Captain Cook; and had not death arrested that great man's career, it is probable he would

would not have left the exploration of the coast of Tartary to his successors. Should your occupations permit you to cast your eye over my narrative, you will find, interwoven with the nautical details, all the observations I had occasion to make on the people I have visited, and the soil and productions of their country. I have neglected nothing, in general, that could interest government with respect to commerce, and, at the same time, have not forgotten that it is necessary to engage the attention and occupy the leisure of the learned, who are waiting only for our return, perhaps, to publish new systems of philosophy. To my narrative I have added all the necessary charts, plans, and tables of latitude and longitude, as well as the drawings of Messrs Duché and Blondela, for the truth of which I can be responsible.

I have the honour to send you also two memoirs relative to the political part of my instructions, the one on Manilla and the other on Formosa. They are very summary, because I know the value of time, and they contain only what I thought ought to be inserted in my narrative. I dared not trust them to the post; and think you will approve of the step I have taken in dispatching M. de Lesséps, our Russian interpreter, to France. I considered that his pay and subsistence would amount to nearly as much as the expence of his journey from Kamtschatka to Paris, and I should be unwilling to carry with me into the southern hemisphere a young man destined for a diplomatic career of consulships, and who would lose on board, that time which he ought to employ in instruction. I have therefore charged him with my letters; and I flatter myself that by the time he arrives at Paris, our ships will have reached New Zealand.

In a few days I shall have the honour to address you a letter relative to the ulterior plan of my voyage, which will be of nearly four years continuance.

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During that period we shall have been 38 months under sail; a voyage, perhaps, hitherto without example.

FROM M. DE LA PÉROUSE.

SIR,

Awatscha, Sept. 21, 1787.

I HAD the honour of addressing you by Messrs. Dufresne and Lesséps, the narrative of my voyage from our first leaving Brest to our arrival at Kamtschatka. It now remains for me to inform you of the ultimate plan of our navigation, since I have made use of the liberty you gave me, of making any alteration in it that should be found convenient, conforming, however, as much as possible to my instructions. I thought it best to begin with the northern hemisphere, and conclude with that of the south, where the Isle of France is situated, considering that as the ultimate limit of the objects of my navigation.

I may venture to flatter myself your intentions have been thus far perfectly answered with respect to me; and I have been so completely seconded by M. de Langle, that if the voyage appears of any value in your eyes, he ought certainly to participate in the honour and advantage of it. Our ships, in despite of the fogs, have sailed so close together, and in such perfect concert, that we might almost pronounce this expedition to have been effected by only one ship and captain. I purpose quitting the bay of Awatscha on the 1st of October. I shall then shape my course to reconnoitre the northern Kuriles as far as the Canal de la Bouffole, where I shall run along the 37th parallel, in search of the pretended land discovered by the Spaniards in 1610. I do not believe in the existence of this land, which is very near the ordinary track of the galleons; and all the information I can obtain, leads me to believe, the Spaniards never fell in
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with it. From the 37th parallel I shall steer for the archipelago north of the Marianas or Ladrões, and run along that chain of islands as far as Guam, where I shall put in for only five days, to procure such a stock of fruit and oxen as may preserve our crews from the scurvy during the remainder of our long navigation.

From Guam I shall steer for the Cardine Islands, if the information I obtain promises a certainty of making Cape Choiseul of the *Terre des Arfucides* and passing through the same strait as M. de Bougainville, in order to get to the southward, and with the westerly winds arrive in Queen Charlotte's Sound in New Zealand *, about the 20th January 1788. If, on the contrary, from my own observation and enquiry of others, I find it impossible to pursue that track, I shall abandon the attempt to explore the Caroline Islands, which will oblige me to sail 150 leagues to leeward of the Marianas, and I shall steer directly from Guam to New Zealand, keeping as much to the eastward as possible. In a track so perfectly new, it is probable I may find several islands more interesting than the Carolines, and certainly less known. I shall employ some time in visiting them; neither of these plans requiring my arrival in New Zealand till the 20th of January 1788. From Queen Charlotte's Sound I shall run to the Friendly Islands, and perform all that is enjoined me in my instructions relative to the southern part of New Caledonia, the island of Santa Cruz de Mendana, the southern coast of the *Terre des Arfucides*, and Bougainville's Louisiade, determining whether it forms a part of New Guinea, or is separated from it. At the

* In a subsequent letter, dated 28th September, la Pérouse announces, that on the 28th he received letters from the Minister at Kamtschatka, and that the only change of his plan resulting from thence will be that of not going to New Zealand, that he may have more time to explore the coast of New Holland, and the English settlement there.—*French Editor.*

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end of July I shall pass between New Guinea and New Holland, by a different channel from that of Endeavour Strait, should that passage be found really to exist. During the months of August and September, and a part of October I shall visit the Gulph of Carpentaria, and the coast of New Holland, but in such a manner that I shall be able to get to the northward towards the tropics, and arrive in the beginning of December 1788, at the Isle of France; thence I shall speedily depart to explore the pretended Cape Circumcision of Bouvet, and touching at the Cape of Good Hope or not, as circumstances may require, arrive in France about June 1789, 46 months after my departure.

I flatter myself you will observe with pleasure that, in this long voyage, I shall not have had occasion to touch at those tedious Society Islands, on which more has been already written than on several of the kingdoms of Europe, and I acknowledge I shall think myself happy in not having to speak either of Otaheite or Queen Oberca. I have always taken particular care to avoid the tracks of preceding navigators.

FROM M. DE LA PÉROUSE.

SIR, *Arwatscha, Sept. 25, 1787.*

YOU already know that our misfortune on the north-west coast of America frustrated all the intended favours you were pleased to bestow on the officers of our ships. Messrs. d'Escures and de Pierrevert had each a pension, which may be given to Mess. de Vaujuas and Boutin, officers of equal merit, and no less distinguished by their talents than by their zeal and activity. Messrs. de Bellegarde and le Gobien, *gardes de la marine*, whom you have associated with us in our labours, and who, at Macao and Manilla, evinced so ardent a desire to supply the place of the officers

officers we had the misfortune to lose, will by the time they arrive at the Isle of France, have very well merited the commissions of *enseigne* granted to Mess. de Boutervilliers, de Flaffan, and de Montarnal. Mess. de Blondela and Colinet, lieutenants, to whom you have permitted me to give hopes of a commission of *capitaine de brûlot* on their return, have already, by their good conduct, merited that reward, which I therefore entreat you to send to them at the Isle of France, with the commission for M. de Monti, and a letter of approbation to M. de Clonard. The latter being promoted to the rank of *capitaine de vaisseau*, has nothing further to expect, but continues to perform the duty of a lieutenant, and attends to the most minute particulars of service with an ardour and attention deserving the greatest eulogium. Though my applause may perhaps be suspected of partiality, since he is my most particular friend, I must assure you there cannot be found a better officer, or a more virtuous and honourable man.

I have also many eulogiums to confer on the good conduct of M. Guyet de la Villeneuve, who at Manilla was removed from M. de la Croix de Castries's ship to mine, to supply the place of M. de Saint Céran, whose bad state of health obliged me to send him to the Isle of France. Nor can I omit the praises due to Mess. Mouton and Broudou, whom I have rewarded with the lieutenant's commission you were pleased to give me in blank before my departure.

M. de Langle relies for every particular in astronomy on M. de Lauriston, a young man full of talents, zeal, and merit. He has been so successful a pupil, that he no longer requires a master. M. Dagelet has also been perfectly well seconded by M. Darbaud, and there is not perhaps in all France a young man who at so early an age possesses so much information.

M. Dagelet is here employed in the same manner as ourselves, and doubtless performs it better. Among
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all his good and amiable qualities, his only defect seems to be a very delicate constitution.

M. de Langle is above all panegyric ; and I hope sincerely for the benefit of the service and of the state, he may attain the highest rank in the navy before old age and fatigue shall have diminished his powers.

M. Rollin, doctor of physic, and surgeon on board my ship, is a man of distinguished knowledge. By his care he has preserved us from the scurvy and every other disease. You have authorised me to promise him a pension on his return, if the mortality does not exceed three in the hundred on board my ship ; and during the twenty-six months that have elapsed since our departure, not one person has died a natural death on board the *Bouffole*, nor have we a man sick.

M. de Langle is also very well satisfied with his surgeon, M. Lavaux. He has only lost a consumptive servant, and M. Daigremont, who poisoned himself by obstinately taking burnt brandy to cure the dysentery. The purser's clerk of the *Astrolabe* is also dead of a fractured scull, occasioned by a musket bursting in his hands.

FROM M. DE LANGLE.

SIR,

Arwatscha, 25th Sept. 1787.

THE fogs that have constantly enveloped us, since our departure from Manilla, have considerably damaged the cordage of the *Astrolabe*. With the spare cordage, however, which remain on board, I hope to be able to take her at least to the Isle of France, about the time fixed in the plan of our voyage. In other respects my ship is in good condition.

During the fogs I have always kept within hail of the *Bouffole*, because M. de la Pérouse has always made a point of our keeping company together, and my officers have piqued themselves upon not separating

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rating from him. To the encomiums I have already had the honour to send you on their talents, I wish I were able to add sufficient praise for the patience with which they await the end of the voyage, and the eagerness of their desire to make new discoveries.

The interest I take in the honour of my country, and the success of M. de la Pérouse, induce me to mention to you with what reason we felicitate ourselves on having terminated our perilous and difficult navigation along the coast of Asia, for which we are certainly indebted to the vigilance, the prudence, and the talents of our commander. It will always be my endeavour to second his designs, both from the interest I feel in promoting the science of geography, and from every motive of gratitude for all the marks of friendship he has at all times bestowed upon me. I know also that you are anxious for the success of the voyage; and nothing will obliterate from my recollection the favours with which you have honoured me. It will be the earnest wish of my heart to merit a continuation of your confidence.

FROM M. DE LA PÉROUSE.

SIR,

Awatscha, 27th Sept. 1787.

M. DE LESSEPS, whom I have charged with my letters, is a young man whose conduct has been exemplary throughout our voyage; and in sending him to France, I sacrifice much of my own pleasure to the friendship I entertain for him. But as he is probably destined one day to fill the place of his father in Russia, I think a journey by land, across this vast empire, will afford him means of acquiring information useful to our commerce, and calculated to strengthen our connection with a kingdom, whose productions are so necessary to our navy.

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M. de Lesseps appears to speak the Russian tongue with the same facility as the French. He has rendered us at Kamtschatka the greatest service; and if the reversion of the place of consul-general at Peterburgh, which his father enjoys, should be the reward of his voyage round the world by sea and land, I shall regard this favour as a testimony of your satisfaction at our conduct.

FROM M. DE LA PÉROUSE.

SIR,

Botany Bay, 5th Feb. 1788.

BEFORE this letter arrives, I flatter myself you will have received the journal of my voyage from Manilla to Kamtschatka, which I had the honour to send you by M. de Lesseps, who left the harbour of St. Peter and St. Paul October 1, 1787. That part of our expedition, doubtless the most difficult, in seas absolutely unknown to navigators, has been, however, the only one where we have not experienced any misfortune. In the southern hemisphere the most terrible disaster awaited us. I can only repeat here what you will read more at length in my journal. Messrs. de Langle and de Lamanon, with ten other persons, have fallen victims to their own humanity. Had their tenderness of the life of others permitted them to fire on the islanders before they were surrounded, our boats would not have been destroyed by the fury of the savages, and his Majesty would not have lost one of the best officers in the navy.

Although this event has greatly diminished the number of our crews, I have not deemed it proper to alter the ultimate plan of my expedition. I have been obliged, however, more hastily to explore the various and interesting islands of the South Sea that I might have time to construct two boats at Botany Bay, and reconnoitre the principal points required

in my instructions before the change of the monsoon, which would render that exploration impossible.

We have arrived at New Holland without having one sick man on board either of our ships. Eighteen of the twenty wounded at Maouna, have entirely recovered; and M. Lavaux, surgeon of the *Astrolabe*, who has been trepanned, as well as a sailor of the same ship, are entirely out of danger.

M. de Monti, second captain to M. de Langle, continued to command the *Astrolabe* till our arrival at Botany Bay. He is so excellent an officer, that I did not think it necessary to make any change in the ship till our arrival in port, where, however, I could not overlook the just claim of M. de Clonard, who holds the rank of *capitaine de vaisseau*. His place on board my ship has been supplied by M. de Monti, whose talents and zeal are above all praise, and whose good conduct gives him the fairest title to the captain's commission you were pleased to promise him, if the accounts you should receive of him were favourable.

At Botany Bay we were preceded by the English only five days. To the most distinguished politeness, they have added every service in their power; and it was not without regret that, as soon as we arrived, we beheld them depart for Port Jackson, fifteen miles to the northward of Botany Bay. Commodore Philip, with great reason, gave the preference to that place, and has left us sole masters of this bay, where our boats are already on the stocks. By the end of the month I expect they will be launched.

We are only ten miles distant from the English by land, and consequently enabled to have frequent intercourse. It being possible Commodore Philip may make an expedition to the islands of the South Sea, I considered it my duty to give him the latitude and longitude of Maouna, and to guard him against the perfidious

perfidious caresses he may possibly receive from the inhabitants of that island should his ships touch there in the course of his navigation.

FROM M. DE LA PÉROUSE.

SIR,

Botany Bay, Feb. 7, 1788.

I SHALL run up to the Friendly Islands, and obey all my instructions relative to the southern part of New Caledonia, the Island of Santa Cruz de Mendana, the southern coast of *La Terre des Arfacides* of Surville, and the Louisiade of Bougainville, examining at the same time whether this last is or is not a part of New Guinea. About the end of July 1788, I shall pass between New Guinea and New Holland by another channel than that called Endeavour Strait, if any can be found. During the month of September and part of October, I shall visit the Gulph of Carpentaria, and all the western coast of New Holland as far as Van Diemen's land, but so that I may be able to get to the northward soon enough to arrive in the Isle of France about the beginning of December 1788.

FROM M. DE LESSEPS.

SIR,

Versailles, Oct. 31, 1788.

ON my arrival at Kamtschatka, I made it my business to procure particular information relative to the secret expedition preparing at Okhotsk, and the motive of the voyage. Some information I procured there may perhaps interest your curiosity, and afford a testimony of the ardent desire I feel to afford you every satisfaction. I take the liberty of adding to it other accounts which I think novel, and consequently proper to be laid before you.

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Mr. Billings

M. Billings, who sailed with Captain Cook in his last voyage, as an astronomer, was sent from England to command this expedition, the Empress having applied for a person well informed in this science. On this man her imperial Majesty conferred the rank of captain of a ship of the 2d rate, gave him a *carte-blanche*, and empowered him to examine the situation of the whole of Siberia. She has been at a great expence in building and fitting out two vessels from Okhotsk, and officers of the Russian navy have been chosen with orders to repair to Okhotsk, under the command of Mr. Billings, and assist in the construction of the ships. This expedition was in contemplation at the time of the departure of M. de la Pérouse, for it was mentioned that he might fall in with it perhaps in the northern parts of the South Seas. I found it so little advanced when I was at Okhotsk on the 8th of May last, that of one ship the framing was scarcely finished; and of the other only the keel was laid. In all probability these ships can with difficulty be got to sea in the year 1789. Not to lose any time, Mr. Billings determined previously to equip a few small vessels or sloops on the river Kolumé, and having sailed down that river in 1787, made a voyage in the Frozen Ocean. His first intention was, I imagine, to go by sea to Kamtschatka, and double Capes Svetoi and Tchoukotskoi, the former of which is the only obstacle that navigators have yet met with in their voyages. This Mr. Billings was not able to overcome, and probably the ice prevented him from doubling Cape Svetoi. He returned to the river Kolumé, about the end of the same year. The ice being carried by the northerly winds towards the coast, forced him to approach it very often, and he took advantage of those from the south to continue his voyage, the sea being then more practicable. The destination of the two ships at Okhotsk, under the command of Mr. Billings is yet a perfect

perfect secret. Possibly, according to some rumours that prevail in the country, the captain intends to pass Behring's Straits, to complete his first design, or run down the north-west coast of America. The secret is, however, so closely kept, that my conjectures have perhaps little foundation.

I take the liberty of presenting you with two charts I procured at Okhotsk. Permit me to have the honour of making you this little acknowledgment; and as I would not risk taking copies of them, I hope you will be pleased to order one to be made for me.

The first is a general map, containing the eastern part of Asia, some of the Aleutian Islands, Kamtschatka, the seas of Okhotsk and Pencilinka, the Kuriles, the extent of the Russian discoveries, and the little they know of the Island of Segalien, of Jesso, and the coast of Tartary. The other map appears romantic, and is so in fact. But notwithstanding its singularity, it may afford you pleasure, and the Kuriles are, as I am assured, very well delineated. I have translated the articles which appear necessary to understand this chart, but it is not known by whom it was constructed, or who made the voyage. The description, which I think very improbable, has been copied, as well as the chart, from the original, remaining at Okhotsk, where I found nothing else that was more interesting.

Several vessels have been lost during the last year, on the coast of Kamtschatka, or its vicinity. Among others, a ship belonging to Mr. Lantz, an English merchant, and commanded by Capt. Peters, was wrecked on Copper Island. A Portuguese, and a Bengal negro, were the only persons saved; who, after passing the winter on the island, were sent, by the Russians, to Kamtschatka, where I saw them. They are to be sent, this year, to Petersburg, and it is probable they will arrive there in two or three months. The captain, during his first stay at Kamtschatka,

chatka, had contracted with a merchant of the country, named Schelikoff, for purchases to the amount of 80,000 roubles; and, by this Russian, had sent to obtain permission of the Empress to trade in this part of her dominions. The ship was expected to return to Kamtschatka; but, during the interval, he had been on a voyage to the north-west coast of America, probably to procure furs; and it was not till his return, and within a short distance from the harbour of St. Peter and St. Paul, that he was lost. He therefore received no benefit from the permission he had solicited, though it was immediately granted.

I found likewise at Kamtschatka nine Japanese, who, for want of a compass, were driven, in a gale of wind, off their own coast, of which the inhabitants take great care never to lose sight. They had kept the sea for six months in a little coasting vessel, and the first land they made was the Aleutian Islands, where their only care was to anchor, go on shore, and abandon the vessel. The night, the prospect of bad weather, and the efforts of the Russians whom they met there, all were insufficient to induce them to return to the ship, either to unload her cargo, or even bring her to a place of safety. In short, overjoyed at being again on shore, they forgot all other considerations, and left her to the fury of the winds, which during the night drove her on shore. Only a few of the effects were saved, which the Russians took charge of, and carried to Kamtschatka, in their vessels employed in the fur trade. Thither also they carried the nine Japanese, who are treated there with great kindness and attention, and will speedily be sent to Petersburg.

I have the honour to assure you, that the vocabulary of the language of Kamtschatka, which I composed by the orders of M. de la Pérouse, is as correct as I could possibly make it. You and he have the disposal of it; but I intreat you to permit
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me to insert it in my journal, as it will contribute, perhaps, to render my narrative more interesting. To this I devote myself, with the greatest application, according to your orders; hoping that I shall soon be able to present it to you, and render myself more worthy of your kindness.

M. de la Pérouse commanded me, in his instructions, to remind you of the obligations he owed to Colonel Kasloff-Ougrenin, colonel and commandant of Okhotk and Kamtschatka, who refused to accept payment for seven oxen he gave us for our ships. He regretted he was not able to furnish the rye meal, for which M. de la Pérouse applied, but there was none to be found in any of the magazines at Kamtschatka. M. Vafili-Schmaleff, already celebrated in Cook's voyage, and now inspector general of Kamtschatka, has also rendered us various services, as well as Ensign Kaborof, commandant of the harbour of St. Peter and St. Paul. M. de la Pérouse acknowledges he was as well received by them, as if they had been his own countrymen; and was very desirous, while returning thanks to the Russian court, to procure a recompence for these gentlemen; adequate to their services. It is well known, the English, on their return, made several presents to Major Behm, then commandant of Kamtschatka, and the other Russian officers in that peninsula; though we have reason to believe they were not treated equally well with us. I am indebted to these officers for the assistance they rendered me in my journey over land, and I can assure you they procured me every aid in their power. M. Kasloff, who shewed a great attachment to me, has given me a note of what he hoped from the bounty of the Empress. Should it be agreeable, I will transmit it to you.

EXTRACTS OF LETTERS,

*From Messrs. de la Pérouse and Dagelet,
to M. Fleurieu.*

FROM M. DE LA PÉROUSE.

Macao Road, Jan. 3, 1787.

I SEND you the chart of Monterey, laid down by ourselves. At that place I had no opportunity of becoming acquainted with several officers of the small navy of San-Blas, who are certainly not deficient in information, and appeared to me very capable of taking the most accurate surveys.

You see I have often changed the plan of my navigation, as experience and reflection have directed me. It is only in this manner that so vast a plan as ours can be finally executed.

For example, I sailed from the Sandwich Islands directly to Mount Saint Elias, because had I begun with Monterey, and then gone northward, I should have been constantly opposed by the north westerly winds; while, on the contrary, with the same winds, I was enabled to range along the coast of America, as I came downwards, and follow it at pleasure. But the fogs are an incessantly recurring obstacle, and obliged me to lose considerable time in the precautions which prudence constantly demanded. I do not think more than three clear days can there be expected in a month. The currents also are extremely violent, and call for the greatest caution. At *Port des Français*, they occasioned the misfortune of which you have been informed by my former letters; a misfortune that will be to me an everlasting source of grief.

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I know not whether you will regret that I did not more perfectly explore the archipelago of St. Lazarus, (if it deserves that name) which, in my opinion, it does not. But it must be observed, that I discovered the entrance of it only about the end of August, when the days becoming very short, we were continually surrounded by fogs, and at Cape Hector encountered currents running more than six miles an hour. It was therefore impossible to pass between all these islands in the space of two or three months; and from the very beginning of September, the season is over. This survey, to be complete, would require a separate expedition for that purpose alone, and of not less than two or three years duration. Nothing is so tedious as exploring in detail a coast interspersed with islands and gulphs, where the fogs and currents are so frequent, so violent, and so uncertain, that it cannot be approached without extreme prudence and precaution. However that may be, I entertain not the least doubt the voyage of Admiral Fuentes, at least as we now have it, is greatly exaggerated, if not a mere dream of fiction. It is impossible in so short a time to run over so vast a space as he pretends; and I am tempted to believe that Admiral Fuentes, and his Captain Bernarda, are chimerical beings, and their narrative of his pretended voyage a fable. It is true, however, that from Cross Sound to Cape Fleurieu, the great Spanish navigator Maurillo, Capt. Cook, and myself, have only coasted along islands 40 or 50 leagues distant from the continent. This opinion is founded on the direction of the continent, which I again saw at Cape Fleurieu. These islands are mostly of great extent, and as they shut one within another, if I may be allowed the expression, this disposition gives them the appearance of a continued coast. I had frequently suspected the land I perceived was not always in the same plane; but this suspicion be-

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came a certainty when, doubling Cape Hector, I ran 20 leagues to the northward. All these details, suppose you to have before your eyes the charts and plans I send you, and that you follow our route upon them as you read my narrative.

You must perceive, that on the whole very few particulars can be expected from us. In order to run over, in four years, all the points indicated in my instructions, we have not a day to lose. But our navigation will furnish a proof that the health of a crew may be preserved during a long continuance at sea: for we have arrived at Macao without having one man attacked with scurvy; though, during a voyage of eighteen months, we have passed fifteen in laborious navigation, through climates the most opposite and various.

I write to you in haste, without order, throwing my ideas on paper as they arise. I am anchored at five miles distance from the town, with which I have yet had no communication; and as I am told a ship will sail for Europe to-morrow, I make up my dispatches post haste. To the letters I send the minister, I have added my narrative, and my charts and plans. I shall send him duplicates the first opportunity, that, if any accident happen to us on the coast of Tartary, the beginning, at least, of our voyage may be of some utility to navigators. You will surely remark, with pleasure, in reading my journal, that if from the savages we have visited some injuries have been received, we have fortunately done them no mischief. You know better than any other person how expressly it was enjoined me not to employ force but on the last extremity, and are no less acquainted that it is a sentiment long cherished in my heart.

P. S. We have purchased, on the coast of America, nearly 1000 otter skins; but the greater number are in strips, and almost rotten. In this traffick I have used a scrupulous delicacy, unknown among
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the purchases of former navigators along this coast. Not a single skin was purchased, but by M. Dufresne. I entrusted him with the conduct of this trade, and he has acquitted himself of this delicate commission with great zeal and intelligence.

He has numbered and registered every skin, and will sell them here for the profit of the sailors. I shall transmit the accounts to the minister, as a supercargo would to his employer; annexing the receipts of all those to whom money has been paid. I would not permit a single skin to be reserved for the officers, the men of science, the artists, or myself. The profit of the voyage ought to be the property of the sailors*, and the glory, if there be any, the reward of the officers and their assistants, who have conducted the expedition. I declare to you, my dear friend, that I would not have undertaken this voyage, for one hundred thousand crowns paid down, though I have not hesitated to engage in it as a duty, influenced by the gratitude I feel for the confidence that has been placed, doubtless rather in my zeal than my talents.

Manilla, 8th April, 1787.

I DO not give you, my dear friend, any particulars of my voyage; you have before you my letters to the minister, and I flatter myself, you have read my narrative with no small interest. We are certainly the first navigators who in the same year, have gone as far as Mount St. Elias, after visiting Easter Island, the Sandwich Islands, and investigated several other points in geography. Our charts, plans, and journals, the tables of our route, &c. will sufficiently prove, we

* The skins were sold for 10,000 piastres, for the benefit of the crews.—*French Editor.*

have.

have neglected nothing that could contribute to the accuracy of our various labours.

The part of our task that remains to be executed this year, is the most difficult. The information we could obtain of China, concerning the coast of that empire we are going to survey, extends only certainly to confirm the violence of the currents in those straits, and to assure us we shall meet with several banks, and almost continual fogs.

But, persuaded that patience and persevering industry will conquer all things, these obstacles only serve to inflame my ardour, and I place the greatest confidence in my good fortune.

Awatscha, 10th Sept. 1787.

I WRITE to you, my dear friend, without any order, only determining not to omit any thing.

The minister must already have received by the hands of M. Dufresne, the particulars of our voyage, since our departure from France till our arrival at Macao; and by M. Lessèps I transmit the sequel of the narrative from Macao to Kamtschatka.

I hope you will be pleased with that part of our voyage between Macao and Kamtschatka. It is the most novel, the most interesting, and on account of the continual fogs which prevail in these latitudes, certainly the most difficult. These fogs were so great, that I have been obliged to consume 150 days in exploring that part of the coast which Captain King, in the third volume of Captain Cook's last voyage, supposed might be surveyed in two months. Yet I have only rested three days in Baie de Ternai, two in Langle Bay, and five in Castrics' Bay. I have therefore not lost any time; nor have I neglected to sail round the Island of Chicha, passing through the Strait of Sangaar. I could have wished to have anchored

chored off the northern point of Japan, and should, perhaps, have risked sending a boat ashore, although such a step required serious consideration, as it probably might have been detained. Such an accident, though to a merchant ship but of little importance, might be considered as a national insult, when offered to the boat of a ship in his majesty's service. To seize and burn a few sampanes, would have been a poor retaliation, upon a people who would not exchange one European of whom they wished to make an example, for a hundred Japanese. However that may be, I had no opportunity to make the experiment, and it is impossible to say, at this moment, what I should have done, had it been feasible.

It would be difficult to depict the fatigues we have undergone, in this part of our voyage, during all which I have not been undressed, or enjoyed four nights without being obliged to walk the deck for several hours. Figure to yourself six days of fog, with only two or three hours of clear weather, in the narrowest seas, absolutely unknown, where the imagination exaggerating the information we had received, painted to itself danger and currents, where sometimes they had no existence. From the point where we landed, on the eastern coast of Tartary, to the strait we discovered between the island of Tchoka, and that of Chicha, we omitted not the bearings of one point, and you may be assured, not a creek, a harbour, or a river, has escaped us. You may also be confident, that there are many charts of European coasts, less accurate than those we shall bring home at our return *. The chart annexed to this dispatch, is in a manner only a sketch, very carefully made indeed, but in which the position of some points may

* Unfortunately these charts have not arrived, having shared the fate of our enterprising navigators. But what la Pérouse says of those we possess, considerably diminishes the loss geography has to deplore.—*French Editor.*

vary from the exact truth, about 10 or 12 minutes of longitude.

We have then at length decided the famous question concerning Jessō, Oku-Jessō, the Strait of Tessō, &c. with which geographers have been so long occupied. Neither have I neglected any thing that could offer a true idea of the people who inhabit these islands and the continent.

The Russians have thought it most convenient to efface these islands from their charts, though they are ten times as extensive as their Kurile Islands, which are nothing more than barren rocks, whose population does not exceed 3,000. The fogs prevented me from laying down the Kuriles to the northward of Mareckan, as far as Point Lopatka. But I propose to survey them on leaving the bay of Awatscha, though it appears unimportant, the English having determined the point of Paramousir, and ourselves that of the north of Mareckan. The islands between these two points cannot be placed on the chart with any great error.

You will perceive that our labours on this coast, connect astonishingly well with those of the Dutch, whose navigation is, perhaps, the most exact of any, up to the time of the Kastricum's voyage. You will find among the papers I send the minister, the chart you gave me, of the discoveries of Captain Vries. That navigator did not suspect there was any sea behind the land he was coasting, and still less any strait to the northward of the village of Acqueis, before which he was at anchor. From his relation it might be inferred, that the people of Tchoka and Chicha, were absolutely the same, since quitting Acqueis, and arriving at Aniva, he did not suspect he was no longer on the same island.

Another advantage arising to us from the Dutch voyage, is its having furnished us with the breadth of the island of Tchoka, as far as Cape Patience, and even beyond ;

beyond ; for the longitudes taken by the Dutch, from the meridian of Cape Nabo are nearly exact.

On your chart, which I send the minister, I have drawn the strait we discovered, through the midst of the Dutch mountains, and have traced our route in sight of Staten Island, from the strait of Vries, and Company's Land.

In reading my narrative with the chart before you, you will surely remark, that I might have followed the coast of Corea as far as the 42^d degree. This would have been a much easier, and perhaps a more brilliant undertaking, than that I have performed ; but I thought it more important, to determine with accuracy, a point of Japan which would give us the breadth of the sea of Tartary, and also that of the island from Cape Nabo. I am sure you will approve what I have done, while you regret as I do, that circumstances did not permit me more completely to explore the coast of Japan. But, my dear friend, do not forget while examining the operations of our voyage, do not, I beseech you forget, those everlasting fogs, that would not permit me to do in a month, what in the fine skies under the tropics, might have been effected in three days. Recollect also, that without the beneficial storm, which in the straits of Tartary, gave us 48 hours of northerly winds, we should not have arrived this year, in Kamtschatka.

Though we have not accomplished every thing, I am convinced, more could scarcely have been performed. Our voyage may now, therefore, hold the next rank to the English ; though I did not hope so much on my return from the coast of America, since we were compelled to run over it so rapidly. But several expeditions will scarcely be sufficient to give the particulars, even from Cross Sound to Port San Francisco. Figure to yourself every league bays whose depth cannot be measured, because their heads

are beyond the reach of sight ; currents like those of *le Four* and *le Raz* on the coast of Brittany, and fogs almost perpetual. Hence you will conclude that a whole season is scarcely sufficient for completely exploring in every point, even 20 leagues of such a coast, nor would I engage to give an exact and particular account, after six months labour, of the country between Cross Sound and Port Bucarelli, still less as far as Cape Hector, which would require several years. I have therefore been compelled to attempt nothing more, than to lay down the latitudes and longitudes of the principal capes, to trace and delineate the true direction of the coast, from one point to another, and determine the geographical position of the islands that lie several leagues distant from the continent. The vast plan of our voyage did not permit me to undertake any greater operation. Captain Cook has, perhaps, not even done so much on this coast. Not that I would in the least detract from the merit of that celebrated navigator ; but, opposed by contrary winds, and like me, confined within certain limits of time, which prevented him from extending his discoveries, he sailed at a greater distance from the coast, than circumstances made it necessary for me to do ; and when he approached it in the neighbourhood of Cook's River, and Prince William's Sound, it was with an expectation, which though I think it ill founded, he never abandoned, of getting away to the northward, and running after his favourite object, a passage into Baffin's Bay or Davis's Strait. His survey of Prince William's Sound, still leaves much to be desired ; but I must repeat, that such investigations require much more time, than either he or I could devote to our researches.

At Manilla, I procured the journal of a voyage, by the famous Spanish pilot Don Francisco Antonio Maurillo, on the N. W. coast of America. Thus, adding his journal to that of the first voyage of the Spaniards

Spaniards in those parts, which Mr. Barrington has published in his *Miscellanies*, and of which I have a translated extract among the notes you were pleased to collect for my instruction, we are possessed of all the secrets of Maurillo. I left this navigator at Manilla, in the command of one of the vessels belonging to the New Company, destined for a coasting voyage from Cavita to Canton. I send you a very particular chart of Port Bucarelli and the neighbouring islands, which I procured at Manilla. The Spaniards in their second voyage, penetrated as far as Prince William's Sound, and thinking themselves on the coast of Kamtschatka, were every instant afraid of being attacked by the Russians. I do not send you their general chart, because in fact it would rather retard than advance the progress of geography. Do they wish to deceive others, or do they deceive themselves? Be this as it may, they only saw the land near Port Bucarelli, and at the entrance of Prince William's Sound.

To the charts of this second part of my voyage, I have added particular plans drawn by M. Blondela, one of the lieutenants of the *Astrolabe*, who works with an assiduity, intelligence, order, and neatness, deserving the highest encomiums.

You will find among the plans nine very accurate drawings from the hand of M. Duché. To these M. Blondela has added a view of the harbour of St. Peter and St. Paul, taken at a different point of view from that inserted in Captain Cook's third voyage, and a collection of drawings of the different sailing vessels used by the various people whom we have visited. This collection is very interesting, and deserves to be engraved.

I shall leave Awatscha on the first of October, where we have been received with the greatest marks of affection; but the ship from Okhotsk has probably

been lost in the passage *, and the Governor of Kamtschatka, though extremely willing, has not been able to supply us with a single chest of flour. This want will oblige me to put into Guaham, for the purpose of procuring a supply there.

The following is the future plan of my voyage, subject however, from time to time, to the change of circumstances and events that cannot be foreseen.

You know I have already inverted a part of the first plan laid down in my instructions; in conformity to the permission I received. I thought it would be more expeditious to begin with the northern hemisphere, and conclude with that of the south, as my course must terminate by putting into the Isle of France, situated to the southward of the line. I confess I was also afraid of being anticipated by the English, who, previous to my departure, had announced the project of a new voyage of discovery. I was particularly apprehensive for the coast of Tartary, &c. the only absolutely unknown part I was destined to explore, and where I would not, for any consideration in the world have been anticipated.

On quitting Awatscha I shall direct my course to the Kuriles, and endeavour to determine the position of those islands as far as the Canal de la Bouffole. I shall then run down the parallel of 37° , to search for the land said to have been discovered by the Spaniards in 1610. I shall next ascend again to the northward of the Marianas, and the archipelago of the latter as far as Guaham; where I shall put in to procure provisions. I shall only pass five days at Guaham, and then direct my course to the Carolines. Should I see a prospect, after quitting these islands, of making Cape Choiseul, in the *Terre des Arfucides* of Surville, and of passing through Bougainville's Strait; I shall then run to the northward, where I may fall in with the westerly winds, &c.

* See the journal of M. Lesseps.—*French Editor.*

If, on the contrary, from the information I receive at Guaham, and my observations during the passage, I shall be convinced that by making the Carolines we should run too much to windward to arrive at New Zealand by the 1st of February, 1788, I shall abandon the Carolines, as being of little importance, and steer as much to the eastward as possible. I shall visit every thing I meet with in my way; and this track, which is absolutely new, must occasion me to fall in with some unknown islands, perhaps of much greater consequence than the Carolines. Either plan will permit to arrive, about the 1st of February, in Queen Charlotte's Straits. Thence I shall employ six months in exploring the Friendly Islands to procure refreshments, the south-western coast of New Caledonia, the island of Santa Cruz de Mendana, the southern coast of *La Terre des Arfucides*, and La Louisiade, as far as New Guinea, where I shall seek for another channel than the Endeavour Straits. I shall employ the months of August, September, and part of October, in visiting the gulph of Carpentaria, and the west coast of New Holland, but so managing my operations that I may easily ascend to the northward to reach the tropic, and arrive at the Isle of France by the end of November.

Quitting the Isle of France, about the 25th of December, 1788, I shall steer for Cape Circumcision, whence I shall return to France, touching at the Cape of Good Hope or not, according to circumstances; and I hope to arrive in Brest in June 1789, forty-six or forty-seven months after my departure from that port.

This is my new plan, in which you will see that I cannot introduce either the coast of New Holland, or Van Dieman's Land, whence I could not make the Isle of France, on account of the westerly winds, without going entirely round the whole of the former. That course appears far too long and impracticable:

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French Editor.

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the state of our rigging, and even of our ships, would not permit me to undertake it.

I have made no mention of the Society Islands, because they are so well known already as no longer to attract curiosity; and it is perhaps meritorious in a commander, certainly it is for the benefit of his crews, to make the circuit of the world without touching at Otaheite. You know also that the Society and Friendly Islands, and those of Mendana, and others already well known, were only inserted in my instructions as resources, leaving me at liberty, in case of need, to put in at these islands, for the purpose of procuring refreshments; but I either can or will do without them. I shall not, however, forget that you recommended it to me as important to the improvement of geography, to determine the true position of some of the points surveyed by Lord Carteret, in order to have certain data for correcting the errors in the reckoning throughout the course of that navigator, who was destitute of time-keepers, and seems to have made very few astronomical observations.

The same Francisco Antonio Maurillo, the Cook of the Spaniards, though, in my opinion, far inferior to that circumnavigator, made a third voyage, in the commencement of the year 1781, from Manilla to North America, where he intended to reach a high southern latitude, that he might afterwards get to the eastward with the westerly winds that blow in the neighbourhood of New Zealand; but for want of provisions he could not execute his plan, and was obliged to run to the northward, towards the Marianas, where he took the usual track of the galleons to arrive at San Blas. I send you the journal of this third voyage, in which Maurillo supposed he had made several discoveries, only because he was unacquainted with those of the modern navigators. At first I wished to keep this journal, to ascertain

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ascertain whether Maurillo had actually discovered any new land in the vicinity of the Friendly Islands, where the natives inform us there exist a great number of others, which they are themselves acquainted with, but which Europeans have not reconnoitred; but, on examination, I found it would only lead me into error. The chart is an undigested chaos of confusion, the narrative ill arranged, the longitudes deduced from a reckoning more erroneous than total uncertainty, and the latitudes very ill observed.

I have procured an excellent chart of Manilla, and some other interesting plans. You will readily believe it was not without great difficulty, and making some sacrifices, I have succeeded in obtaining them; for you know the Spaniards are far from communicative, though, in fact, they have more to learn than they can teach. Other maritime nations have been eager to publish to all Europe what these people would have veiled from our sight in mysterious obscurity. At Manilla I had occasion to confirm the opinion I had formed of their pusillanimous and useless circumspection. The governor of the island is in possession of a chart from Manilla and Kamtschatka, which, on the slightest inspection, I discovered to be nothing more than the French chart of Bellin, on a larger scale. You know the character of our hydrographer, and the errors of this chart, less accurate perhaps than any other of the same author. The governor would not permit me to inspect it but for a moment, and at some distance, so great was his fear lest my memory should be good enough to get a copy of it made from recollection. I thought his apprehensions so puerile, that forgetting for the moment his importance, I could not refrain from telling him, that in a little time I should know more than he or his charts could ever teach me.

If you will take the trouble of ascertaining the
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aggregate of my stay in port, since the 1st of August, 1785, the time of my departure from Brest, to the 7th of September, 1787, when I arrived at Kamtschatka, you will see, that in that interval I have employed only five months and thirteen days in the different harbours, and twenty-five months in navigation. You will learn also with pleasure, that notwithstanding the fatigues and privations inseparable from so long a navigation, not a single man has died on board my ship, and nor have we a man sick. The Astrolabe has lost one officer, but his death was occasioned by his own imprudence, and by no means a consequence of the fatigues and dangers of the voyage. You may be assured the attention of Captain Cook to his crew was not greater or more constant than is incessantly paid by M. de Langle and myself, to the preservation of the valuable men who participate our labours; and if at the end of our voyage we continue to enjoy the same good fortune, we shall add another instance to those adduced by Cook, to prove that with care and judicious regimen, seamen may be preserved from scurvy and other diseases, apparently inseparable from a long continuance at sea; but these repeated experiments will afford no conclusion, applicable to ships of the line, with 800, 1000, or 1200 men, often recruited with convalescents from hospitals, and whom it is impossible to feed in the same manner as a crew of 100 men, chosen for a particular expedition, on *Moissac*, flour of the first quality, and *Cahors* or *Teneriffe* wines, at 600 livres the tun, or to administer all the antiscorbutics which the sciences of medicine and natural history have combined. It must also be observed, that the small space allotted to a great number of men on board large ships, does not admit of a large roomy hammock for each; and that the officers are not sufficiently numerous to extend their inspection, however active it may be, to every particular

particular item, apparently minute and trifling; such as making the sailors regularly change their linen, to preserve these brave fellows from the indolence natural to man with regard to the cleanliness of his person; a species of indolence which is rarely overcome, but when roused to support fatigue, or to encounter difficulty and danger.

In addition to all these various and continual cares, I have been attentive to touch at every place where I could be assured of procuring excellent provision for my crews, without regarding the expence, as at La Conception, Chili, Monterey in California, Macao, Manilla, &c. I was of opinion that it was a part of the discoveries to be made in this expedition to ascertain whether men perfectly well fed and well attended to, can sustain the fatigues of the longest navigations, under all climates, in all latitudes, in the midst of fogs, and under a burning sun. At present I can answer in the affirmative; but my voyage is yet far from concluded. May our constant cares and unceasing zeal be ever recompensed with the like success!

Awatscha, 25th Sept. 1787.

I SEND you, my dear friend, a memoir written by M. Rollin, surgeon of the *Bouffole*. When you have read it, you will doubtless be of opinion, that it ought to constitute a part of the collection of memoirs and other works, which our learned men respectively prepare, according to their various departments. M. Rollin is a man of the most exalted merit. In twenty-six months, he has neither lost a single man, nor has at present one sick individual under his care. He is unremittingly occupied in examining, preserving, and improving our provisions, and in general every branch of preventive medicine, which

which I esteem infinitely more beneficial than the curative.

Annexed is a table of the latitudes and longitudes of the various points of our chart of the Archipelago of Corea, Eastern Tartary, &c. The longitudes are corrected for each meridian, from a mean of longitudes obtained by lunar observations, taken when the moon was to the eastward, and longitudes deduced when it was to the westward of the sun. In those different cases we have always found a difference of from 20 to 26 minutes in the results on board each ship. This can only be attributed to an error in the tables: which, in the opinion of M. Dagelet, require correction. In general, you must consider our present accounts of this part of our voyage, as rather an unfinished work, requiring, perhaps, some trifling revision.

We have found here the tomb of M. de Lisle de la Croyère, on which I have placed an inscription, engraved on copper. It is, perhaps, unknown in France, that this learned man married in Russia, and has left a family, who enjoy all the consideration due to the memory of their ancestor. His grand son is counsellor of the Siberian mines, a place which produces him considerable emolument.

Awatscha, Sept. 28, 1787.

I WRITE to you again, my dear friend, to inform you of the receipt of the letters, which have arrived by the way of Okhotsk, on the eve of my departure*. I am treated with such kindness and distinction, as neither my zeal nor my services can ever deserve.

* His commission of *Chef d'escadre* was inclosed in these letters, which the Russian court had undertaken to convey to him at Kamtschatka.—*French Editor.*

The orders I have just received, will make no alteration in the future plan of my voyage, only that I shall put into Botany Bay, on the eastern coast of New Holland. This useful object I should have missed, had I begun with the southern hemisphere. But the chief advantage I derive from my present course, is that I am now certain of not being anticipated by any English ship on the coast of Tartary, &c. I know those sent from India have passed to the eastward of Japan. The largest of them was lost on Copper Island, near that of Behring, and only two of her men saved, with whom I had some conversation, before they were sent to Peterburgh by land.

The vessel constructing at Okhotsk, intended by the Russians for a voyage of discovery in these seas, is scarcely on the stocks, and possibly may not be ready for sea in less than three or four years.

Adieu, I shall depart to-morrow in good health, as well as my whole crew. We would sail round the world six times over, if our voyage could afford either advantage or pleasure to our native country.

FROM M. DAGELET.

Botany Bay, February 5, 1788.

I HAVE given M. de la Pérouse, to be inclosed in his letters to the minister, a table, containing the longitudes and latitudes, by observation on board, between our departure from Kamtschatka and the day of our anchoring in Botany Bay. The commodore has instructed me to give you some account of this part of our performance, and I shall comply with his request, though perhaps unnecessary, with the more pleasure, as it will be rather an opportunity of recommending myself to your friendship and recollection, than a useful astronomical dissertation.

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I have divided the table into four columns. The first includes the daily longitude, by the time-keeper N^o 19, taking its rate as determined at the Bay of Awatscha. The second column includes the corrections necessary to be made in these longitudes, to obtain the exact longitude, as we have determined it at different times, by a great number of sets of lunar observations. I have endeavoured to execute them with all the accuracy possible, from a few days preceding our making Navigators' Island, till our arrival at Botany Bay; and I think there is very little uncertainty in any thing regarding the truly geographical points of the lands we have seen. The third column exhibits the true longitudes, and the fourth the latitudes carefully determined.

FROM M. DE LA PÉROUSE.

Botany Bay, February 7, 1788.

IT seems decreed by fate that I shall never have any thing, my dear friend, but misfortunes to relate to you; and that my utmost prudence must constantly be frustrated, by events impossible to be foreseen, but of which I have always had a kind of secret presentiment. I confess I have to reproach myself for having yielded, almost in spite of myself, on that unfortunate day, the 11th of December last, to the importunity, I might even say the uncommon obstinacy of M. de Langle, who asserted that fresh water, water newly casked, was the best antiscorbutic, and that his crew would be all attacked with the scurvy before our arrival at New Holland, if he did not provide himself with fresh water. I have arrived here, however, without a sick man, though our crews have drunk nothing but old water; and I am convinced that water, if it be good, is
equally

equally salubrious, whether new or old*. In my narrative you will read the particulars of the unfortunate event at the Islands of Navigators, which has so deeply affected my sensibility that it would be a torture to relate it again. You will surely think it inconceivable that a man of the greatest good sense, the maturest judgment, full of information, and possessed of every kind of knowledge, should prefer an unsafe place, where his long-boats were left dry by the ebb of the tide, to a well-known extensive bay, where the water was excellent. Two thousand Indians, who surrounded them, tore their boats to pieces, after massacring all the men who had not time to take refuge in the boats that lay afloat at the edge of the reefs; while the ships were peaceably bartering with the natives, two leagues in the offing, where most assuredly we were far from suspecting the probability of such an accident.

Thirty Indians were killed on shore, on that fatal day, by the people of our long-boats, when they found themselves attacked; and had I not restrained the just fury of our crews, they might have massacred 500 more, who were dispersed over our two ships, or crowding the canoes that surrounded them. These canoes, which were bartering along-side in perfect security, might have been sunk; but I thought that such barbarity would neither repair our misfortune, nor console us for our loss; and it is not admissible to commit violence but when absolutely necessary.

Near this part of the coast, where the village *du Massacre* is situated, I could find only a bad bottom of coral. The swell also set right in shore, and I am

* It is said to be a general fact, that in long voyages the officers prefer for their own use the water shipped at the port of their equipment, to any they procure afterwards, and that they drink the former to the end of the expedition.

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certain our cables could not have resisted it during two hours. The ships might then have been placed in the most imminent danger, without its being possible for them to approach within gun shot of that detestable little bay. Nor did I think the pleasure of burning five or six huts sufficient to induce me to put the safety of the two ships so much at hazard. I believe, however, that I could not have refused attempting it, if I had entertained a hope of retaking our long-boats; but the savages, after having almost destroyed them, had run their wrecks upon the beach.

You will be glad to find that such a misfortune has not made any change in the future plan of my voyage. But it has, however, prevented me from completely exploring the Archipelago of Navigators, which I think more considerable, more populous, and more abounding in provisions, than the Society Islands, including Otaheite, and ten times more extensive than all the Friendly Islands together. We have got sight of the Archipelago of Vavao, adjoining the latter, and which the Spanish pilot Maurillo fell in with; but of which he has stated the longitude so erroneously, that to place it on the charts according to his statement, would only be introducing additional confusion. Navigators may be guarded from all uncertainty in this respect by our observations, or rather those of Capt. Cook, who has so well described the cluster of Hapae, that it is impossible not to perceive their identity with the *Islas de Galvez* of Maurillo.

You will find in my narrative, that I have seen Pylstaart and Norfolk Islands, and that I am arrived at Botany Bay, without a man sick on board either of the ships; the slight symptoms of scurvy that appeared having yielded to the fresh provisions I obtained at the Islands of Navigators. I am certain that the sea air is not the principal cause of this disease,

disease, but that it ought rather to be attributed to the bad air between the decks, when not frequently renewed, and still more to the bad quality of the provisions. Can it be supposed that biscuit, worm-eaten and resembling a bee-hive, as it sometimes is; meat, the substance of which is corroded with an acrimonious salt, and pulse absolutely dry and decayed, can repair the daily waste of the body? The decomposition of the humours of the blood, is a natural consequence of the want of nutriment. I therefore consider spirit of scurvy-grass, and all the remedies contained in the surgeon's chest, as mere momentary palliatives; fresh provisions, and fresh provisions alone, whether animal or vegetable, cure the scurvy so radically, that our crews, after living only a month on pigs, procured at Navigators' Islands, have arrived at Botany Bay in better health than when they left Brest; though they passed only twenty-four hours on shore in the Island of Maouana. It is my opinion that malt, spruce beer, wine, coffee, sauer-kraut, &c. are antiscorbutics only because those substances, whether liquids or solids, are subject to very little alteration, and constitute a proper aliment for man. They are not, however, alone sufficient to cure the scurvy, though I think they may retard it, and with that view the use of them cannot be too frequently recommended. I regard as mere medical quackeries all the fixed airs, &c. of the French and English physicians. Though swallowed by bottles full, and will not do seamen a thousandth part of the benefit they would receive from good slices of roast beef, beef steaks, turtle, fish, fruit, vegetables, &c.

My theory upon the scurvy may be reduced to the following aphorisms, which are certainly not derived from Hippocrates:

Aliment of any kind, proper for man, and capable of repairing the daily waste of the body.

The

The pure air of the atmosphere, introduced as often as possible between the decks and into the hold.

Counteracting, by almost constant fumigations, and even by braziers of burning coals, the pernicious humidity occasioned by the fogs.

Cleanliness, and a frequent inspection of the sailors' cloathing.

Regular exercise, and sufficient time for sleep, without indulging sloth.

I confess I place no confidence in Capt. Cook's observation concerning the deterioration of water in the casks. I think that which is of a good quality, when put on board, after undergoing the two or three changes well known to all seamen, which render it stinking for a few days, becomes afterwards excellent, and perhaps as light as distilled water, all the heterogeneous particles being precipitated and fixed in sediment at the bottom of the cask. At the time I am now writing, though we are very near a good watering place, I drink the water from *Port des Français*, on the coast of America, and find it excellent. This false notion, in which I never concurred, was the cause of our disaster at Maoua. But how could I oppose an experienced captain, when he assured me all his crew would be affected with scurvy in less than a fortnight, if they had not fresh water.*

M. Dagelet

* A due variety of nutritious food, and an unremitting attention to the non-naturals, are most likely to produce and preserve a perfect state of health. These are 1st, air; 2nd, meat and drink; 3d, exercise and rest; 4th, the passions of the mind, (or moral stimuli); 5th, excretion and retention, (including humidity); 6th, sleep and waking. Of these the first, fourth, and fifth, are most unwarrantably neglected. In very long voyages, atmospheric air, which is of the utmost importance to life, as it is constantly entering the system, ought to be introduced between decks, by means of ventilators, of which White's air machine is unquestionably the best;

M. Dagelet will write to you on the subject of his astronomical observations, I shall, therefore, not enter into that subject. It is sufficient for me to say, that the combination of our two methods, our lunar observations, and our time-keepers, have completely resolved the problem. Thus we have constantly navigated with less error in the longitude, than prevailed ten years ago in the latitude, when observations were made with wooden octants, and perhaps one fourth of the inaccuracy when the cross staff and old quadrant were used.

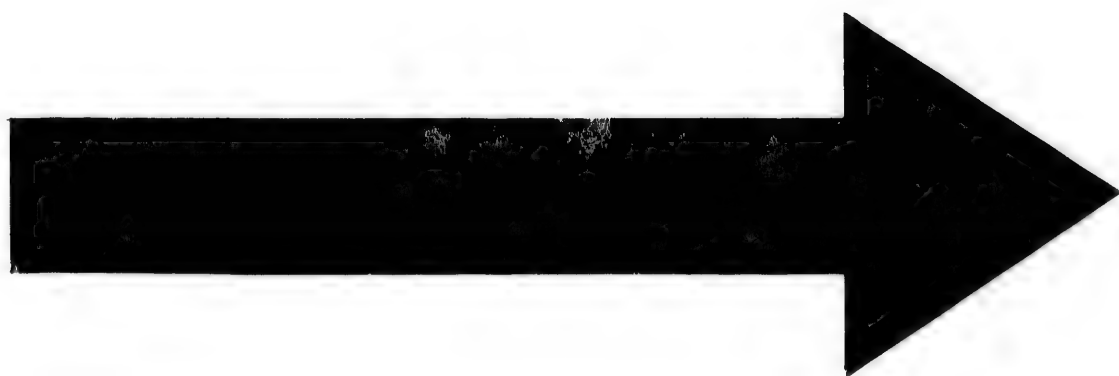
The death of M. de Langle will not make any change on board the *Astrolabe*, as to the astronomical observations. For near a year, M. de Lauriston, who is a young officer of the first merit, has had the sole care of them. For accuracy he may, perhaps, dispute the prize with our professed astronomers;

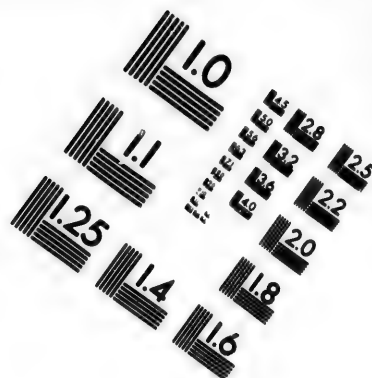
best; and secretion and excretion, which require infinitely more attention at sea than on shore, are found to depend, in a wonderful degree, on the moral stimuli of amusement and pleasure.

It cannot be too often repeated that *variety* of stimulus is highly important to health; a remark equally interesting to those who have, and those who have not the choice of their own food and regimen, as children, sailors, &c. Every drug loses its power by constant use, of which opium is a familiar instance, though one of the strongest stimuli ever employed.

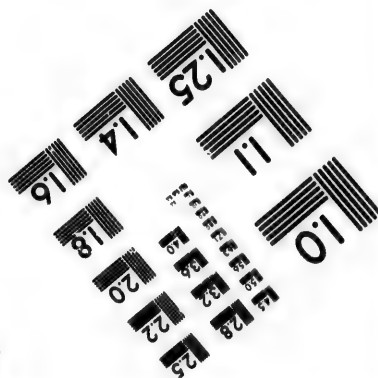
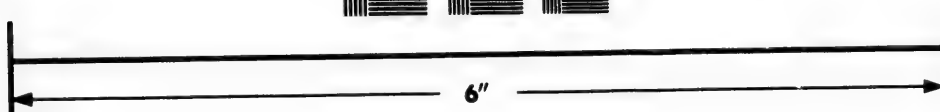
Life is a *forced state*, depending on the stimuli that give motion to our frame, and the blood which is constantly hurrying on to fulfil the purposes of its destination, requires a constant supply of its numerous component parts. If these are withheld, or the facitious and transient stimuli of spirits and salt, substituted for substances convertible into blood, the skin, and other parts of the body, cannot be supplied and regenerated, cutaneous and scorbutic diseases must ensue, and the phenomena attributed to a discrasia of the blood will appear.

The substances most easily convertible into blood, are those which have once existed under that form, as milk, cheese, butter, and butcher's meat; also farinaceous vegetables, as potatoes, peas, &c. which are found to contain the principles of the fibrous and muscular parts of animals, (see *Fordyce on Digestion*); or lastly, saccharine vegetables, or such as abound in sugar, as carrots, parsnips, &c.—Inattention to several of these causes of health, would account for the destruction of all the fleets and armies in the universe.—*Translator.*



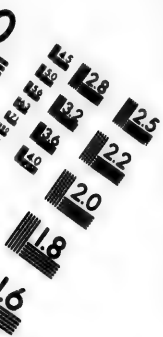


Resolution test chart showing patterns of horizontal and vertical lines with numerical values ranging from 1.0 to 4.0.



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and I know that his journal of observations is kept with the greatest regularity.

The English having fixed a settlement at Port Jackson, have entirely abandoned Botany Bay. I have formed a kind of entrenchment with palisades, to construct our new boats in security, which will be completed by the end of the month. This precaution was necessary against the Indians of New Holland, who, though by no means strong or numerous, are like all other savages, very treacherous; and would burn our boats if they had the means and a favourable opportunity. They threw spears at us, after having received our presents and experienced our kindness. My opinion of uncivilized nations has been long fixed, and this voyage will but confirm it.

J'ai trop, à mes perils, appris à les connaître.

Yet even with these savages I am by no means so angry, as with the philosophers who extol them with so much enthusiasm. The unfortunate Lamanon, who fell himself a victim to their perfidious cruelty, told me, the very evening before his death, that these wretches were better men than ourselves. Bound by duty rigidly to observe the rules prescribed me, I have always used them with the greatest lenity; but, I confess, were I to make a second voyage of this kind, I would solicit different instructions. A navigator, on quitting Europe, ought to consider all savages (however weak) as enemies, whom it would be ungenerous to attack unprovoked, and barbarous to destroy; but against whom he ought to use every precaution, when fair suspicions render it justifiable to anticipate their attacks.

I have informed you already, by my letters from Kamtschatka, of the future plan I have been obliged to adopt, in the further prosecution of my voyage, to arrive in Europe about the month of June, 1789.

Neither

Neither our provisions, our rigging, nor even our ships, will permit us longer to protract our voyage, which at least with respect to the length of our course, will be the most considerable in the annals of navigation. Many interesting objects remain to be explored, and many very mischievous tribes to be visited *; on whom I will not promise but I may discharge a few guns; for I am well convinced, that fear alone can restrain their treacherous intentions.

I shall quit Botany Bay on the 15th of March, and shall lose no time till the month of December, when I hope to arrive at the Isle of France.

In the sequel of my journal, you will find the plan of the Islands of Navigators. The natives enumerated ten; and I think, to complete this archipelago, we ought to include in it Quiros's Island of the Handsome Nation, the Cocoas, and that of the Traitors; but of this I am not entirely certain. The two last are very small, and of little importance, but I should not be surprised if the islands of Maouna, Oyolava, and Pola together, contain 400,000 inhabitants. Maouna is much smaller than the other two; and yet in the space of 24 hours, we procured there 500 pigs, and a vast quantity of fruit.

I could have wished to add to the chart of Navigators' Islands, that of the archipelago of Friendly Islands, including the islands of Vavao, Latte, &c. but to my great regret it is not finished, and cannot be ready before our departure. To supply the place of the chart, you will find, in the tables, the latitudes and longitudes of these Islands. These are more exact than those inserted in my narrative; which, though historical, has been written as the events occurred, and the longitudes being inserted, before the ultimate observations were taken, they may sometimes require correction.

* Those of the islands lying south-east of New Guinea, discovered by the French in 1768, and 1769.

M. de Clonard, at present commands the *Astrolabe*; and M. de Monti fills his place on board the *Bouffole*. They are both of them officers of the greatest merit. In M. de Langle we lost one indeed, of superior excellence. He possessed most valuable qualities, and I know of no other fault in him but his obstinacy, and a tenaciousness of his own opinion, which rendered it impossible to avoid a quarrel, unless by complying. In this manner my last permission, which was the cause of his destruction, was rather wrested from me than obtained. I should never have yielded to his importunities, had the account he gave of the bay been accurate; nor can I conceive how a man otherwise so prudent, and enlightened could be so grossly mistaken.

You see my, dear friend, that I am still extremely affected by this event. In spite of myself, it incessantly recurs to my imagination.

EXTRACTS.

From Letters written by M. de la Pérouse to M. de la Touche, Assistant Director of the Ports, and Captain in the French Navy; and from M. de Lamanon to M. de Servières.

FROM M. DE LA PÉROUSE.

Macao, 6th January, 1787.

Here I am, my dear la Touche, safe arrived at last in China, 18 months after my departure from France, of which 15 have been employed at sea.

We have not lost any individual by sickness, and there is not one man sick on board either of our ships; but doubtless you are at this time acquainted with the disaster we suffered on the coast of America. For all the particulars of my voyage, I refer you to the complete narrative transmitted to the minister.

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Although we have already made almost a complete circuit round the globe, our expedition is still but in its commencement. As soon as the fine weather sets in, I shall depart from this place to run along the coasts of China, and Tartary, up to Kamtschatka: a navigation certainly the most difficult that can possibly be attempted. In the three or four days I have been at Macao, I have collected some information, and they report that all the channels between China and Japan, the coast of Tartary and the Kuriles, are full of sand banks, that the currents are extremely violent, and the fogs almost perpetual. Our task is therefore not easy; but we will perform it, or perish in the attempt.

I have been anxious to send the complete narrative of my voyage up to our arrival at Macao, together with our charts, that if any misfortune happens to us, the fruits of this part of our expedition, which I think interesting, may not be lost to the world. I expect to depart from this place for Manilla, by the end of the month; and from Manilla for Kamtschatka, on the 10th April. Adieu, accept the best wishes of my heart.

Kamtschatka, Sept. 22d, 1787.

I HAVE already, my dear friend, made a voyage nearly round the world, without receiving a letter from you. I will not, however, accuse you, for none of my other friends have written to me. Yet I must complain, because my disappointment renders me unhappy, and it is at least allowable to give vent to sorrow. I shall give you no particulars of my voyage, because you have it in your power to see the whole of my narrative, and being a seaman, are more able than any one to judge of the difficulties of every kind that attend a navigation like that we have performed, in the midst of currents, fogs, and storms, and among

tribes where strangers can neither land nor find supplies, in case of accident. No Europeans before ourselves, have passed to the westward of Japan. Though we knew it was an island, we were ignorant whether the strait that separates it from Corea, was navigable for large ships. The accounts of Kämpfer could only excite the greatest terror at a navigation in these seas, of which he spoke only from the relations given by the Japanese. The pretended strait of Tessôy of Father des Anges was not calculated to inspire much confidence, since he described it as full of weeds, which obstruct and render it impassable for ships. We have destroyed all these geographical chimeras, discovered a strait indisputably new, and at length arrived at Kamtschatka, whence I shall depart for the southern hemisphere on the first of October 1787, not expecting to arrive in France till the month of June 1789.

I have read, my dear friend, the new regulations, and I solemnly declare it as my opinion, they are perfect. I wish that, like the ark of the Lord, it might be forbidden by law to touch it for at least two centuries, after the first year, in the course of which some ministerial letters may be necessary for its interpretation. I find in it *gardes de la marine* educated for the sea; officers who have nothing to think of but their duties at sea, and directors who have only to attend to their respective occupations; troops formed to serve usefully on board a ship, where we may always have infantry enough, when we have no war in Germany: lastly a center of union in the commander. This ensures the execution of the plan, which is the only good, true and reasonable system. What I have so long desired, I have at last seen accomplished, that is a commanding marine (of nobles,) and an auxiliary (mercantile) marine, whose interests have been so provided for as not to humiliate them, while the education

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education given to the young people will be such, as to render them a little rough, but never haughty; a circumstance that will give them a firmness of character. I could wish to have been educated as the new naval students will be, whose name has been very properly changed; as nothing of the old school was worth preserving.

FROM M. DE LAMANON.

On the Chinese Seas, 1st January, 1787.

YOU, my dear Servières, who have so many correspondents, yet have none in China. You are, however, known to your advantage, and have friends there. Can you doubt it when you learn that it is from Macao I now write? a thousand times have I regretted, and as often have I rejoiced, you were not with us. The pleasure I have had since our departure has been great, I labour more than 12 hours a day, and yet am scarcely ever up to my work. Fish to dissect, animals to describe, insects to catch, shells to class, events to relate, mountains to measure, stones to collect, languages to study, experiments to make, a journal to write, and all nature to contemplate. For all, all this, my existence needs to be multiplied in a twenty-fold ratio. With your activity and health you would have participated my labour and my pleasures; but, if we have some enjoyment, yet consider the situation of a *geologist* obliged to pass three or four years at sea. Between the tropics the stomach becomes weak, and excessive perspiration fatigues the body, while in cold climates fogs overwhelm us. To all this you must add our grief for the loss of our friends, and the dangers we have surmounted, which are certainly not inconsiderable, and you will acknowledge that science, like religion, has its enthusiasts, and perhaps its martyrs. Health and spirits have never forsaken me, and

though a little fatigued with 10,000 leagues we have already traversed, I take breath to proceed with new ardour, nor have I yet had leisure to feel the tedium of langour for a single moment. Mongès and I have each our department; his comprehends birds, a part of the insects, the analysis of stones and waters, and some objects of natural history. In mine I have geology, quadrupeds, fish, shells, and many other aquatic animals; the reduction of meteorological observations, the natural history of the sea, &c. M. de la Martinière who is on board the *Astrolabe*, takes care of the plants, and amuses himself with insects, birds and fish. All these materials to be arranged, and properly applied, require labour and attention.

Preserve your health and your amiable gaiety, and rely upon my constant friendship.

P. S. I shall expect from you, at the Isle of France, a long letter, to inform me of all the most important news both of the literary and political world.

LETTER FROM M. DE LA MARTINIÈRE TO THE MINISTER OF MARINE *.

Road of Santa Cruz, Teneriff, 29th Aug. 1785.

SIR,

SHOULD I, pursuing the example of almost all botanists, who have had occasion to traverse different countries, and observe their productions, only collect a vast variety of plants, to arrange them in an herbal, I should I think by no means fulfilled the charge with which I am entrusted. In my opinion, every botanist, when he arrives in a foreign country, ought immediately to employ himself in examining all its productions, in making an accurate catalogue of

* This piece and the following not coming to my hands till the work was printed off, I have not been able to range them according to their dates. They appeared, however of too much importance to be kept from the inspection of the learned — *French Editor*.

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them in, examining the soil, its exposure and temperature, and lastly in judging by analogy from the vegetation he has seen in other countries, what productions may be propagated with the greatest advantage in France, so as to render an important service to his country.

In this manner, therefore, I have been chiefly occupied during our stay at Madeira and Teneriff, and our excursion to the Peak. I have there found several plants that, with cultivation, would certainly flourish in the province of Languedoc. I judge so from the observations I have made on a vast number of plants of that province, growing here among others of which it is destitute, though they might there become extremely useful.

If, as I hope, we shall ever be able to adapt them to our climate, I shall flatter myself with having conferred no small benefit on that province. You know, Sir, it is entirely destitute of wood. To remedy this inconvenience, therefore, I propose to cultivate the following plants of which I have the honour to send you the seeds.

They are only seven or eight in number, and several of the genus *Genista*. On one of these I could wish many experiments to be made, because besides furnishing the greatest quantity of wood, it would afford that country an excellent food for goats. The inhabitants of Teneriff set us the example, by leaving herds of goats for whole years, in the district where this plant grows in abundance. The animals feed on it exclusively, and thrive extremely well. This shrub, commonly called *ginete*, or broom, is named by Masson in the supplement of Linnæus, *spartium supranullum*. It comes to perfection on the heights of the mountains towards the port of Orotava, on the road leading up the Peak. It is certainly the largest *spartium* yet known. I met with some specimens whose branches covered an area of 80 feet in circumference.

ference. The trunk was nearly as thick as the body of a man, and the branches in proportion. It rises to the height of ten or twelve feet; and when it flowers it must be a most beautiful object, as it has a great quantity both of branches and flowers.

The other plants that appear most likely to vegetate in the south of France are,

1st, A species of asparagus very common in this country. It is a charming shrub, called by Linnæus *asparagus declinatus*.

2dly, A species of cistus, *cistus villosus* Linnæi.

3dly, An euphorbia of the Canaries, (*Euphorbia Canariensis* Linnæi) which grows on the rocks, and is generally used as firewood. The vegetation of this plant is so vigorous, that the same trunk often produces more than 150 branches of the thickness of the arm, and twelve feet high. One of these euphorbiæ would afford a man sufficient fire-wood for a whole winter.

I could wish that, for these experiments, some land might be chosen in the environs of Montferrier, a small village about a mile from Montpellier, round which is an extent of uncultivated land, commonly called *garrigues*. Every thing leads me to believe all these plants would grow very well there, since that country is volcanic, like the island of Teneriff.

The person who appears to me the most proper for making the experiments is M. Gouan, professor of medicine at Montpellier, a very skilful botanist, under whom I took my degree of doctor in physic, and for whom I shall ever entertain the greatest respect. If you will be pleased to transmit him a part of the seeds I have the honour to send you, I shall think myself highly honoured.

I have the happiness also to send you two cords which I made with the bark of the banana, and several parcels of the ligneous part of the same tree, which I entreat you to have examined immediately,
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to try if it is possible to derive from it all the utility I expect.

The ill success of every attempt of making linen and cords, is probably owing to the want of information relative to the proper method of preparing the bark.

The process is as follows: the bark of this plant ought not to be steeped like hemp, because it contains a great quantity of vegetative moisture and pulp, tending to accelerate the putrefaction of the ligneous part which it is essential to preserve. But, on the contrary, if care were taken to cut off the upper rind in strips, and the bark scraped with a knife to extract all the water and pulp contained in one layer, the ligneous part would be easily obtained. It may then be left a short time in water to undergo a slight degree of putrefaction, contributing to render it much softer, after which it may be used for every purpose instead of hemp with much greater advantage, since a single trunk, by its different concentric layers, ten or twelve in number, would afford filaments of different degrees of fineness, according to their distance of the centre of the tree.

You will judge, Sir, of the strength of these little cords which were made at sea. I have shewn them to M. de Langle, who appears strongly persuaded they might be employed to very great advantage. The principal method of trial, he observed, is to lay a cord for some time in water, and try whether it preserves the same degree of strength. This experiment I intend to make *.

Extract

* The voyage of La Pérouse could not, for the reasons I have before assigned, be the means of procuring a great number of new plants; but of those sent home by the gardener Collignon should be noticed, a charming herbaceous plant, that flowered and brought its seeds to maturity in the botanical garden in 1789. Jussieu, who first observed it, has discovered that it constitutes a new genus, belonging to the family of *nyctages*, and has given it the name of *abroma*,

Extract of a Letter from M. de Lamanon, to M. de Condorcet, perpetual Secretary to the Academy of Sciences.

AFTER a run of two months we landed at St. Catharine's Island, where we shall only stay to procure wood and water. Since leaving Teneriff we have seen no land but the Martin Vas islands, which are uninhabited, and Trinidad, where a Portuguese establishment succeeded to that of the English about a year before. It has a garrison of about 150, but no women whatever. Provisions are carried thither every six months, and there is no cultivation in any part of the island, which is nothing more than a rock of basalt. I approached it within hail, but the sea is interspersed with rocks, and we had orders from the captain not to land.

Before you receive this letter, one I sent you from Teneriff will probably have arrived. Being obliged to write to you before we anchor at St. Catharine, as otherwise I shall not have time, it is impossible to send you any considerable news. As our ships do not sail well, the voyage will be somewhat protracted, and is expected to be in the whole three years and a half. We shall then have kept the sea longer than any preceding navigators; for we remain very little time in any port. At present, indeed, we are hastening to double Cape Horn during the favourable season. So long a continuance at sea will not allow me as much time on shore as I require for mineralogical observations; but I take advantage of it for other purposes. I am very well, and labour constantly twelve hours a day without fatigue, notwithstanding the rolling of the ship. Instead of lying in bed till nine or ten o'clock, as was my idle

nia, a Greek word signifying *fine, delicate*, (vide *Gen. Plant.* page 448). Lamarck has given a good drawing of it in his *Illustrationes Generum*, plate 150. The seeds of this plant were collected in California.—*French Editor.*

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custom formerly, I behold the sun rise every morning with renovated pleasure.

I annex hereto a memoir on the results of observations on the barometer, taken hourly between one degree north and one degree south latitude. It should appear that the combined action of the sun and moon produces a flux and reflux of the atmosphere, occasioning a variation of a line in the barometer. According to the calculations of M. de la Place, it ought not to be more than one third of a line. It is true I have read, that according to the calculation of the same philosopher, the barometer ought, at the equator, to vary half a line by the action of the moon, so that some doubt remains. M. de la Place will be able to say whether the observations and the theory accord. Judging from the opinion of the greatest mathematicians concerning the tides, there must be some uncertainty in the fundamental part of this calculation. Some assert that, if the sea were of mercury, the tides would be the same, while others assure us they must be different. It remains for you mathematicians of the first rank to examine this subject anew, and finally determine our belief.

I make magnetical observations with great care, but it would be difficult to give you an account of them. I have watched the dip of the needle twenty-four hours together, to observe the true moment when we passed the magnetic equator, and I found the true zero of the dip at eight o'clock in the morning of the 8th of October, in about $10^{\circ} 46'$ south latitude *. I have made observations on some iron bars laid on the ship, and on some that were fixed; on the oscillations of the needle, both perpendicular and horizontal, and the weights that a magnet will support according to the latitudes; so that before long I hope to have collected a greater number of facts

* See the tables of the track of the *Bouffole*, 8th October, 1785.
—*French Editor.*

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than were ever observed on this subject. The results only will be printed in our general accounts.

We have not one sick man on board, except M. Blondela, whose lungs are considerably affected. We are all pleased with each other, and extremely happy with M. de la Pérouse. As to myself, in particular, I have great reason to praise him, for the readiness of his endeavours to procure me all the assistance my studies and experiments require. M. Mongès has taken for his department ornithology, microscopic animals, and cryptogamous plants. Mine embraces ichthyology, entomology, and the conchology of marine, terrestrial, and river shells. With respect to mineralogy, we have not yet drawn the boundary line; however, from the turn of our minds, the geological observations will rest with me, and the fossils, (*détail des mines*,) and chemistry, with the Abbé Mongès. I am also charged with the meteorological and magnetic observations. When I was at Salon, I lived with my family one year, to provide for the expences of a journey the next. Thus I had a year of study for each year of local observation: at present, I compare my observations when at sea, and collect new ones at every port. My habits of life have, therefore, undergone very little change.

When you have an opportunity of seeing M. le Roy, tell him that on the 25th of October, we had an extraordinary tempest. The heavens appeared all on fire. I passed a part of the night in observing it, and had the pleasure of witnessing three ascending electric meteors. They shot from the sea like an arrow; two rose perpendicularly, and the third formed an angle of 75 degrees. The lightning took a less serpentine direction than in France. Towards the end of the storm I saw a luminous point at the top of the conductor, which remained there a quarter of an hour. This is what they call the Feu Saint-Elme; but it did not appear on the other masts. I am al-

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ways strenuous in recommending the use of conductors. Ours is to be taken down at Saint Catharine's, where we shall arrive to-morrow; but perhaps we may succeed in retaining it some time longer, for M. de la Pérouse appears almost convinced of its utility. He has been told by some one, that the English have laid aside the use of it, and that they have found it productive of great inconvenience. This appears strange, as I know Forster mentions an instance in which it was of the greatest service to Captain Cook's ship. I think we shall at last resolve to take it down during a hard gale of wind, lest it should break, and replace it on the approach of a thunder storm; and that, I believe, would be the safest and most rational plan.

I address the memoir mentioned above, to M. de Fleurieu, because I am not certain whether it is the minister's intention to permit it to be published before our return *.

P. S. We have been very well received at Saint Catharine's, and found there an abundance of every thing. I have collected an ample harvest of insects, quadrupeds, fish, stones, &c. The inhabitants are a well disposed people, and the Governor treated us with politeness.

On board the Bouffole off Saint Catharine,
5th November, 1785.

* See my note, vol. i, p. 25, which was printed nearly two years before I had any knowledge of this letter.—*French Editor.*

OBSERVATIONS

Made between the First Degree of North and the First Degree of South Latitude, in order to discover the Flux and Reflux of the Atmosphere.

BY M. DE LAMANON.

IT has been already observed, that between the tropics the mercury of the barometer remains constantly higher in the syzygies than in the quadratures of the moon; but it has never been suspected, that the flux and reflux of the sea might not only be perceived, but in some degree measured, by means of this instrument; it was reserved for the Academy of Sciences to discover the possibility of applying it to that purpose. The following are the words of that learned body, in their instructions upon this subject given us by M. de la Pérouse, in the beginning of our voyage round the world.

“The Academy also requests the navigators to keep
“an exact account of the different heights of the barometer, in the neighbourhood of the equator, at
“different hours of the day, with a view to discover,
“if possible, what variations in this instrument are
“occasioned by the sun and the moon; this variation
“being at its maximum, when those produced by the
“ordinary causes are at their minimum. It is unnecessary to remark that these nice and delicate observations ought to be made on shore, with the
“greatest precaution.”

Having attended the reading of this article in an extraordinary sitting of the Academy, I procured an excellent barometer to be made by M. Fortin, by which a variation of only the fiftieth part of a line might be distinguished. M. Lavoisier had recommended me to this skilful artist. It was supposed, I

should

should make use of this instrument, which was constructed for the purpose; and it was under that impression that the academy, in its instructions, advised the observations to be made on shore. But having met with a marine barometer at Brest, constructed on Mr. Nairne's plan, as described in the voyages of the celebrated Cook, I found it possessed all the requisites for making exact observations at sea. However violent the rolling of the ship, the mercury has always remained undisturbed, which may be attributed to the mode of suspending of the barometer, and the capillary tube adapted to the common tube. With the Vernier scale added to it, variations of $\frac{1}{16}$ of a line may be perceived.

By observing this barometer every day, at sun rise, at noon, and at sun set, I have remarked that between $11^{\circ} 2'$ and $1^{\circ} 17'$ north latitude, it preserved a very regular motion; the Mercury being always at its greatest height about noon, whence it descended till the evening, and rose again during the night.

It was on the 27th of September that we reached the latitude of $1^{\circ} 17'$, and on the 28th before day break, I began my observations, for which I had prepared in the evening, and continued them hourly, till six in the morning of the first of October, or more than three days and nights. M. Mongès kindly undertook to make the observations for me, during the six hours I devoted to sleep. I thought it necessary to observe also, at the same time, the thermometer in the open air, that attached to the barometer and the hair hygrometer. I also noted down the direction of the wind, the course of the ship, and the way we made, estimated by the log. At the same time I took the opportunity of making observations on the temperature of the sea water, at all hours, and on the dip of the needle.

The results of these observations appear to me very curious. The barometer rose hourly, during six

hours, and then descended for the same time, rising again during the six following hours, and thus continued rising and falling alternately, as is shewn in the following table, extracted from my journal :

		H.	H.		LINES.
The 28th Sept.	{	from 4	to 10 A. M.	— rose	1.9
		10 to 4	P. M.	— fell	1.2
		4 to 10	P. M.	— rose	0.9
29th.	{	10 to 4	A. M.	— fell	1.3
		4 to 10	A. M.	— rose	1.5
		10 to 4	P. M.	— fell	1.3
		4 to 10	P. M.	— rose	1.0
30th.	{	10 to 4	A. M.	— fell	1.7
		4 to 10	A. M.	— rose	1.4
		10 to 4	P. M.	— fell	1.4
		4 to 10	P. M.	— rose	1.0
1st October.		10 to 4	A. M.	— fell	0.8

The flux and reflux of the atmosphere, at the Equator is, therefore, such as to cause a variation in the height of the barometer of about one line $\frac{1}{16}$, according to the English scale ; and the atmosphere may, therefore, be supposed to rise and fall in the same time, about 100 feet. According to M. Bernouilli, the action of the sun and moon combined does not cause the waters of the sea at the Equator to rise more than seven feet.

It is true that some allowance must be made ; 1st, For the variation of temperature in the mercury of the barometer ; 2ndly, Perhaps for that of the air ; and 3dly, For the seven feet of ascent and descent of the sea, on which I was placed during the observations.

I shall leave, however, to more able mathematicians, to prove whether this observation accords with

with theory ; these observations meteorology ; ence of the moir on the *Physique* ; *Cosmographie* ; strated. It allow nothing causing a variation barometer, produce several I think the Academy annex the consequence of the barometer height of

with theory and calculation. Be that as it may, these observations appear sufficiently to prove that meteorologists allow far too much for the influence of the moon, as I have suggested in my memoir on the fog of 1783, printed in the *Journal de Physique*; and as M. de la Place, author of the *Cosmographie élémentaire*, has mathematically demonstrated. It would be no less erroneous, however, to allow nothing for the action of the moon; for, causing a variation of a line and three tenths in the barometer, it may influence the atmosphere, and produce sensible changes.

I think it my duty to lay these observations before the Academy exactly as I made them, and thus I annex them. It must be noticed, that in consequence of the change of the level in the reservoir of the barometer, one line must always be added to the height of the mercury set down in the table.

TABLE
OF OBSERVATIONS TAKEN HOURLY, BETWEEN 1° NORTH AND 1° SOUTH.

DATE.	Course of the Ship	Rate of Sailing.	Thermom. in open air.	Barometer.	Therm. of Barom.	Hair Hygrom.	Wind.	Weather.
Sept. 28--4 A.M.	W. by S.	1½	Degrees. 19½	Inch. Lines. 29 8.9	Degrees. 20	Degrees. 97	S.	Fine. Cloudy at the horizon, lat. 1° 5' N.
5	W. S. W.	I	19½	29 8.9	20	97	S.	Do.
6	W. S. W.	I	19½	29 9.1	20	97½	S.	Do.
7	W. S. W.	I	20	29 9.3	21	98½	S.	Do.
8	W. S. W.	I	20	30 0.5	21	97½	S.	Do.
9	W. S. W.	I	20½	30 0.8	21	96	S.	Do.
10	W. S. W.	I	20½	30 0.8	21	95½	S.	Blue sky. half obscured by clouds.
11	W. S. W.	I	21	30 0.6	21½	95½	S.	Do.
noon	W. S. W.	I	21	30 0.2	21½	95½	S.	Do.
1 P.M.	W. S. W.	I	21	30 0.	21½	95½	S.	Do.
2	W. S. W.	I	21	29 9.7	21½	97	S.	Cloudy.
3	W. S. W.	I	20	29 9.6	21	98	S.	Do.
4	W. S. W.	I	20	29 9.6	21	98	S.	Do. Drizzling rain.
5	S. W. by W.	I	20	29 9.6	21	98	S. by E.	Cloudy.

DATE.	Course of the Ship.	Rate of Sailing	Thermom. in open air.	Barometer.	Therm. of Barom.	Hair Hygrom.	Wind.	Weather.
6	S. W. by W.	I	Degrees. 20	Inch. Lines. 29 9.8	Degrees. 21	Degrees. 97½	S. by E.	Cloudy.
7	S. W. by W.	I	20	30 0.1	20½	99	S. by E.	Do.
	S. W. by W.	I	20	30 0.4	20½	99	S. by E.	Do.

5 — S.W. by W. 1 1 20 29 9.6 21 93 S. by E. 1 Cloudy.

TABLE OF OBSERVATIONS.

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DATE.	Course of the Ship.	Rate of Sailing	Thermom. in open air	Barometer.	Ther. m. of Barom.	Hair Hygrom.	Wind.	Weather.
		Leagues.	Degrees.	Inch. Line.	Degrees.	Degrees.		
6	S. W. by W.	1	20	29 9.8	21	97 $\frac{1}{4}$	S. by E.	Cloudy.
7	S. W. by W.	1	20	30 0.1	20 $\frac{1}{2}$	99	S. by E.	Do.
8	S. W. by W.	1	20	30 0.4	20 $\frac{1}{2}$	99	S. by E.	Do.
9	S. W.	1	20	30 0.5	20 $\frac{1}{2}$	98	S. S. E.	Do.
10	S. W.	1	19 $\frac{1}{4}$	30 0.5	20 $\frac{1}{2}$	98	S. S. E.	Do.
11	S. W.	1	19 $\frac{1}{4}$	30 0.3	20 $\frac{1}{2}$	98	S. S. E.	Do.
midnight	S. W.	1	19 $\frac{1}{4}$	30 0.1	20 $\frac{1}{2}$	98 $\frac{1}{4}$	S. S. E.	Do.
Sept. 29--1 A.M.	S. W.	$\frac{1}{2}$	19 $\frac{1}{4}$	29 9.7	21	98 $\frac{1}{2}$	S. S. E.	Do. with a heavy swell.
2	S. W.	$\frac{1}{2}$	19 $\frac{1}{4}$	29 9.6	21	97	S. S. E.	Do.
3	S. W.	$\frac{1}{2}$	19 $\frac{1}{4}$	29 9.4	21	100	S. S. E.	Do. some drops of rain.
4	S. W.	$\frac{1}{2}$	19 $\frac{1}{4}$	29 9.3	21	100	S. S. E.	Do.
5	S. W. by W.	1	19 $\frac{1}{2}$	29 9.2	21	101	S. S. E.	Do.
6	S. W. by W.	1	19	29 9.2	20	101	S. S. E.	Do.
7	S. W. by W.	1	19	29 9.7	20	101	S. S. E.	Do.
8	S. W. by W.	1	19	30 0.7	21	99	S. S. E.	Cloudy.
9	S. W.	1	20	30 0.7	21	98	S. S. E.	Do.
10	S. W.	1	20 $\frac{1}{4}$	30 0.7	21	96	S. S. E.	Sun pale.
11	S. W.	1	21	30 0.3	22	95 $\frac{1}{4}$	S. S. E.	Blue sky and cloudy.
noon	S. W.	1	21	30 0.2	21 $\frac{1}{2}$	95 $\frac{1}{2}$	S. S. E.	Cloudy.
1 P.M.	S. W.	$\frac{1}{2}$	20 $\frac{1}{4}$	29 9.6	21	98	S. S. E.	Do.
2	S. W.	$\frac{1}{2}$	20 $\frac{1}{4}$	29 9.5	21	99	S. S. E.	Do.
3	S. W.	$\frac{1}{2}$	20 $\frac{1}{4}$	29 9.4	21	98	S. S. E.	Do.

TABLE OF OBSERVATIONS.

DATE.	Course of the Ship.	Rate of Sailing.	Thermom. in open air.	Barometer.	Therm. of Barom.	Hair Hygrom.	Wind.	Weather.
4	S. W.	$\frac{1}{2}$	Degrees. 20 $\frac{1}{2}$	Inch. Lines 29 9.4	Degrees. 21	Degrees. 98	S. S. E.	Blue sky, with clouds.
5	S. W.	1	20 $\frac{1}{2}$	29 9.4	21	98	S. E. by S.	Do.
6	S. W.	1	20	29 9.4	20 $\frac{1}{2}$	98	S. E. by S.	Do. passed the line, in long. 181° 40' by the time-keepers.
7	S. W.	1	20	29 9.3	20 $\frac{1}{2}$	98	S. E. by S.	Fine. Heavy sea.
8	S. W.	1	20	30 0.2	20 $\frac{1}{2}$	97	S. E. by S.	Do.
9	S. W.	1	20	30 0.4	20 $\frac{1}{2}$	98	S. E. by S.	Do.
10	S. W.	$\frac{1}{2}$	20	30 0.4	20	99	S. S. E.	Do.
11	S. W.	$\frac{1}{2}$	20	30 0.4	20	99	S. E.	Cloudy,
midnight	S. W.	$\frac{1}{2}$	19 $\frac{1}{2}$	30 0.3	20	98 $\frac{1}{2}$	S. S. E.	Do.
Sept. 30--1 A.M.	S. W.	$\frac{1}{2}$	19 $\frac{1}{2}$	30 0.2	20	98 $\frac{1}{2}$	S. S. E.	Fine. Some clouds.
2	S. W.	1	19 $\frac{1}{2}$	29 9.4	20	99	S. S. E.	Fine. Halo round Jupit.
3	S. W.	$\frac{1}{2}$	19	29 9.8	20	99	S. S. E.	Fine. Clouds at the ho.
4	S. W.	$\frac{1}{2}$	19	29 9.7	20	91 $\frac{1}{2}$	S. S. E.	Do.
5	S. W.	$\frac{1}{2}$	19	29 9.9	20	91 $\frac{1}{2}$	S. E. by S.	Do.
6	S. W.	$\frac{1}{2}$	19	30 0.1	20	99	S. E. by S.	Cloudy.
7	S. W.	$\frac{1}{2}$	19 $\frac{1}{2}$	30 0.3	20	98	S. E. by S.	Blue sky through the clouds.
8	S. W.	$\frac{1}{2}$	20	30 0.7	21	96	S. E. by S.	Fine.
9	S. W. by S.	$\frac{1}{2}$	20	30 0.8	21	95	S. E.	Do.
10	S. W. by S.	$\frac{1}{2}$	20	30 1.1	21 $\frac{1}{2}$	94	S. E.	Do.

DATE.	Course of the Ship.	Rate of Sailing.	Thermom. in open air.	Barometer.	Therm. of Barom.	Hair Hygrom.	Wind.	Weather.
11	S. W. by S.	$\frac{1}{2}$	Degrees. 21	Inch. Lines 30 1	Degrees. 21 $\frac{1}{2}$	Degrees. 94 $\frac{1}{2}$	S. E.	Fine.
noon	S. W. by S.	$\frac{1}{2}$	21	30 0.7	21 $\frac{1}{2}$	94 $\frac{1}{2}$	S. E.	Do.

TABLE OF OBSERVATIONS.

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DATE.	Course of the Ship.	Rate of Sailing.	Thermom. in open air.	Barometer.	Therm. of Barom.	Hair Hygrom.	Wind.	Weather.
8 —	S. W.	1	20	30 0.7	21	90	S. E. by S.	Fine.
9 —	S. W. by S.	1	20	30 0.8	21	95	S. E.	Do.
10 —	S. W. by S.	1	20	30 1.1	21½	94	S. E.	Do.
11 — noon	S. W. by S.	1	21	30 1	21½	94½	S. E.	Fine.
1 P. M.	S. W.	1	21	30 0.7	21½	94½	S. E.	Do.
2 —	S. W.	1	20	30 0.5	21½	95½	S. E. by S.	Do.
3 —	S. W.	1	19	30	20½	95	S. E. by S.	Do. Cloudy at the hor.
4 —	S. W.	1	19	29 9.8	20½	96	S. E. by S.	Do.
5 —	S. W.	1	19	29 9.7	20½	95½	S. E. by S.	Cloudy.
6 —	S. W.	1	19	29 9.9	20½	95	S. S. E.	Fine. Cloudy at horiz.
7 —	S. W.	1	18½	30 0.1	20½	95	S. S. E.	Do.
8 —	S. W.	1	18½	30 0.3	20	95	S. S. E.	Do.
9 —	S. W. by S.	1	18½	30 0.5	19½	96	S. E. by S.	Some clouds.
10 —	S. W. by S.	1	18½	30 0.6	19½	97½	S. E. by S.	Do.
11 —	S. W. by S.	1	18½	30 0.7	19½	97½	S. E. by S.	Black clouds.
midnight	S. W. by S.	1	19	30 0.6	19½	95½	S. E. by S.	Fine. Some clouds.
Oct. 1.—1 A. M.	S. S. W.	1	19	30 0.3	19½	96	S. E.	Do.
2 —	S. S. W.	1	19	29 0.9	19½	95½	S. E.	Do.
3 —	S. S. W.	1	19	29 0.9	19½	95½	S. E.	Fine.
4 —	S. S. W.	1	19	29 0.9	19½	95	S. E.	Do.
5 —	S. S. W.	1	19	29 0.9	19½	95	S. E.	Do.
6 —	S. S. W.	1	19	30 0.3	19½	95	S. E.	Do. latitude 1° 34' S.

While these observations were making the moon was in the last quarter, and the sun almost at the equator. I intend to repeat them the next time we cross the line, and on shore in some island, with a barometer still more easily affected.—Off St. Catherine, Nov. 5, 1785.

DESCRIPTIVE NOTE

ON THE LIANES OR LARDIZABALE OF CHILI*.

(See the Plates where they have been called Cotton Plants.)

By VENTENAT, Member of the National Institute.

The name of *Liane* is applied universally in both the Indies, to denote climbing or voluble plants. That of which a drawing has been sent by M. de la Martinière, is a low shrub or suffrutex, with a cylindrical stem, branching, furnished with tendrils. The leaves are alternate, furnished with petioles or leaf-stems inflated at their base. Each leaf is biternate, or divided into three folioles, and subdivided into three smaller sharp oval leaflets, entire when young, but afterwards faintly lobed. The flowers, disposed in simple pendent clusters, grow near the summit of the stalk, and the branches in axillæ of the leaves. It is of the order dicecia, that is, the male flowers are on one plant, and the female on another, of the same species. At the base of each cluster are seen two small oval-rounded folioles almost opposite.

MALE FLOWER.

Calyx, formed of six open leaves, oblong-oval, obtuse, the three exterior being the broadest.

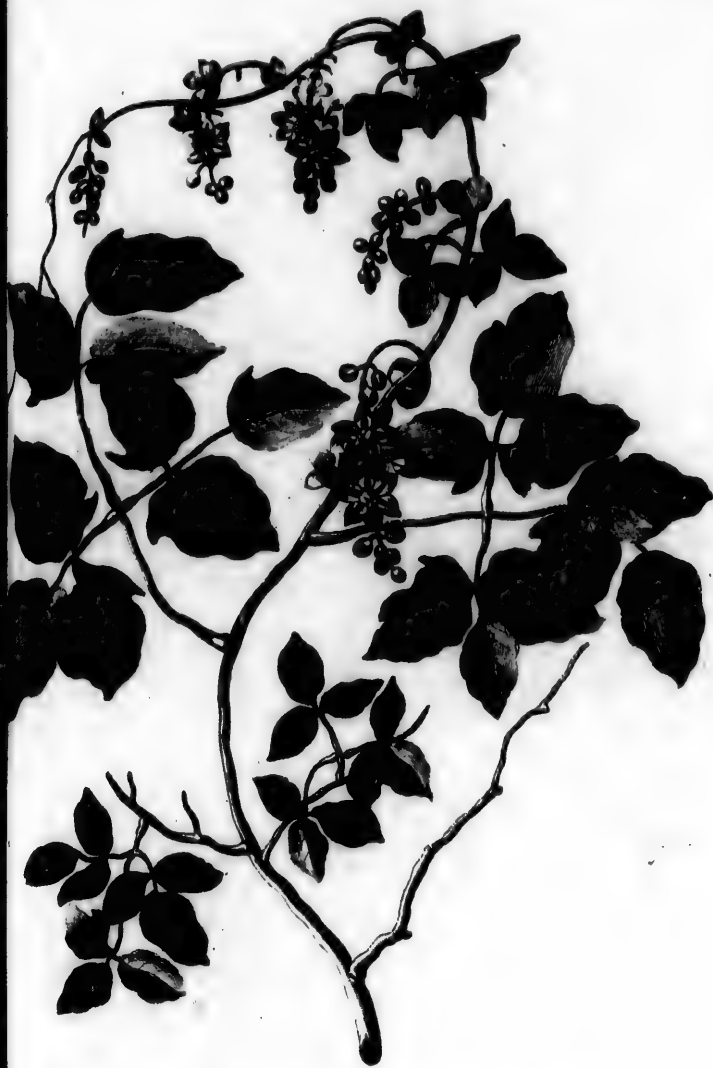
Corolla, formed of six lanceolate petals, opposite to the folioles of the calyx, but rather shorter.

Filament, erect, cylindrical, rises from the center of the flower, of the same length with the petals, terminated by six oblong bilocular anthers, opening outwards.

* The drawings of these plants came without either a memoir or particular description, and I am indebted to the enlightened botanist, who has politely furnished me with this note for supplying the defect.—*French Editor*.

FEMALE





P. Magell. Sculp.

MALE COTTON PLANT of CHILI.

Tab. June 20, 1798, by L. Stockdale.

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FEMALE FLOWER.

Calyx, similar to that of the male flower, but larger.

Corolla, inserted below the pistil, formed of six petals rarely entire, oftener cleft at their summit, bisid or trifid, shorter than the folioles of the calyx.

Styles six, inserted as the corolla, distinct, broad, expanding, very short, surrounding the pistil; stigmas six, erect, oblong, acuminate, barren.

Germens from three to six, oblong, gibbous on the outside, and of almost the length of the corolla; styles wanting, stigmata at top, oblong, persistent.

Berries equal in number to the germens, oblong, acuminate, fleshy, (divided alternately into six compartments, and containing numerous angular seeds.

Flora Péruviana.)

This plant constitutes a new genus belonging to the order diœcia hexandria according to the sexual system of Linnæus. I wished to have given it the name of *La Martinière*, but on looking over the *Flora de Peru y Rhili*, printed at Madrid in 1724, I found it there mentioned under the name of *lardizabala*. Probably it may be found in the herbal of our countryman Dombey, who was sent to Peru in 1774, with Ruiz and Pavon, authors of the *Flora Peruviana*, to contribute to the advancement of natural history.

The general character of the lardizabala, evidently places this new genus among the family of the MENISPERMUM, to which it has an apparent affinity by its climbing stalks, flowers in clusters, distinct sexes, the leaves of its calyx, its petals and stamina, six in number, and its pistil, composed of from three to six germens which become as many fruit.

From the genera of this order hitherto known, it differs, however, in its fruit which, instead of being monos-

monospermous, include several seeds. This character, which should indicate a new section of the *menispermum*, strengthens the relation this family bears to the next order, the *anoneæ*. In fact, the greater part of the genera *anoneæ*, having equally in the same flower many fruits containing numerous seeds, differ in this respect from all the genera of *menispermum*, and placing the *lardizabala* between both, we establish a natural gradation. To confirm this opinion, it only remains to examine the inside of the fruit, and particularly the structure of the seeds. It is well known that those of the *menispermum* are reniform, at least internally, furnished with a fleshy pericarpium, and contain towards their upper part a dicotyledonous embryo. All these characters of the *lardizabala* should lead us to suppose the structure of their seeds similar. The authors of the *Flora Peruviana* do not mention it, because, probably not having sufficiently attended to the principles of the natural method, which on the whole is the true science of botany, they did not attach to the characters furnished by the seed all the importance they deserve. True naturalists, however, will consider them as the touchstone by which all the other characters are to be proved.

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B. Magell. Sculp.

FEMALE COTTON PLANT of CHILI.

Pub. June 20. 1790. by L. Stoddard.

TABLES

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Vol

T A B L E S,
SHEWING
THE COURSE OF LA BOUSSOLE,
DURING THE YEARS

1785, 1786, 1787, AND 1788,

*From the Time of her Departure from Europe, till
her Arrival at Botany Bay.*

In these Tables are given, the Ship's Place at Noon; the Variation of the Compass, as observed in the Morning or Evening of the same Day (and distinguished by the Letter *a* when it is the Result of an Azimuth Observation); the Degree of Temperature by Réaumur's Thermometer; the Height of the Barometer at Sunrise; and lastly, the Dipping of the Needle, whenever it could be observed.

ABBREVIATIONS.

br. for breeze; cl. cloudy; f. fathoms; g. gale; h. hazy; l. light;
ft. stormy; *d. n.* declination of the needle; w. weather.

Page of Vol.	North Latitude
	<i>D. M.</i>
A. 148	1
247	0
346	5
445	3
544	1
643	2
741	19
838	59
936	54
1034	44
1133	02
1232	57
1332	59
14	At Madeira
15	Ditto
1632	31
1731	28
1830	18
1928	32
20	At Teneriffe
21	Ditto
22	Ditto
23	Ditto
24	Ditto
25	Ditto
26	Ditto
27	Ditto
28	Ditto
29	Ditto
3028	21
3127	18
3225	37
3323	56
3422	13
3521	18
3619	26
3717	34
3816	16
3915	17
4014	58
4113	12
4213	57
4313	07
4412	09
4511	02

Day and Month.	North Latitude.	Computed Longitude West.	West Long. by the Time Kept. No. 19.	West Long. by the Dist. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Wind; State of the Atmosphere; Remarks.
D. M.	D. M.	D. M.	Point of Dep.	D. M.	D. M.	D.	P. L.	
1 14	11 7	33	—	—	—	11 1/2	28 02	E. cl. w. rain.
2 47	09 9	03	—	—	—	14	27 11	S. S. E. fr. S. hazy.
3 46	56 10	23	—	—	—	12 1/2	27 07	S. squalls, overcast, rain.
4 45	33 11	23	D. M.	—	21 14	14	27 10	N. E. l. br. fair w.
5 44	15 11	53	11 04	—	21 0	14 1/2	28 04	N. W. ditto.
6 43	23 12	57	11 41	—	22 40	15	28 04	N. N. E. l. br. cl.
7 41	19 14	01	—	—	—	15	28 04	N. E. fr. br. cl.
8 38	59 15	43	14 45	—	22 40	15	28 02	Ditto.
9 36	52 16	16	15 19	—	18 55	15 1/2	28 04	N. E. fr. br. fair.
10 34	40 16	42	—	—	—	16 1/2	28 03	N. E. l. br. fair.
11 33	02 17	13	16 21	—	19 0	17	28 02	N. N. E. ditto.
12 32	57 18	37	17 45	—	—	17	28 02	{ N. N. E. l. br. hazy. At 3 o'clock, P. M. saw the Desert Islands.
13 32	59 19	23	—	—	—	18	28 04	{ E. S. E. l. b. f. At 8 o'clock P. M. anchored in the road of Funchal, at Madeira.
14 At Madeira	—	—	—	—	—	—	—	S. E. very little wind, h.
15 Ditto	—	—	—	—	—	—	—	S. E. little wind, fair.
16 32	31 19	15	—	—	16 0	—	—	{ E. l. br. fair. At 9 o'clock A. M. sailed from Madeira.
17 31	28 19	08	—	—	16 0	—	—	E. l. br. fair.
18 30	18 18	22	18 10	—	—	—	—	{ N. E. fr. br. saw the Sal- vage Islands.
19 28	32 18	52	—	—	16 0	18	28 05	{ N. E. fr. br. At 4 o'clock, A. M. saw the Canaries, 2 leag. to the S. S. W. At 1, P. M. anch. in the road of Santa Cruz, in Teneriffe.
20 At Tenerif	—	—	—	—	—	—	—	N. N. E. l. br. fair
21 Ditto	—	—	—	—	—	—	—	Ditto.
22 Ditto	—	—	—	—	—	—	—	Ditto.
23 Ditto	—	—	—	—	—	—	—	Ditto.
24 Ditto	—	—	—	—	—	—	—	N. E. fr. br. fair.
25 Ditto	—	—	—	—	—	—	—	N. N. E. l. br. fair.
26 Ditto	—	—	—	—	—	—	—	Ditto.
27 Ditto	—	—	—	—	—	—	—	Ditto.
28 Ditto	—	—	—	—	15 52	—	—	E. N. E. l. br. fair.
29 Ditto	—	—	—	—	—	—	—	N. N. E. ditto.
30 28	21 18	31	—	—	15 52	—	—	{ N. N. E. fr. br. f. Took our departure from S. Cruz.
31 27	18 18	43	—	—	15 38	19	28 03	N. N. E. l. br. fair.
1 25	37 19	09	—	—	15 10	18	28 03	N. E. fr. br. fair.
2 23	56 19	09	—	—	15 05	18 1/2	28 03	N. N. E. l. br. hazy.
3 22	13 20	31	—	—	—	19	28 03	N. E. l. br. fair.
4 21	18 20	58	—	—	—	19	28 04	N. ditto.
5 19	26 21	36	22 19	—	—	20	28 03	N. E. ditto.
6 17	34 21	57	—	—	12 07	20	28 02	N. E. fr. br. fair.
7 16	16 22	01	22 34	—	—	20 1/2	28 02	Ditto.
8 15	17 22	04	—	—	8 11	22	28 02	E. calm, ft.
9 14	58 22	10	—	—	—	22	28 02	S. S. E. ditto.
10 14	12 22	11	—	—	8 49	22 1/2	28 02	E. very little wind, fair.
11 13	57 22	21	—	—	—	21	28 02	S. S. E. calm, ft.
12 13	07 22	32	—	—	—	20 1/2	28 02	S. S. E. l. br. ft.
13 12	09 22	38	22 10	—	7 45	19	28 03	N. N. E. ditto.
14 11	02 22	42	22 58	—	10 23	21 1/2	28 02	N. l. br. fair, d. s. 20°.

LA PÉROUSE'S VOYAGE

Sept. and Oct. 1785.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Dif. of the Mo. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Wind, state of the Atmosphere, Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
S. 15	10 22	22 43	—	—	10 16	21	28 02	N. N. W. l. br. fair
16	9 10	22 10	—	—	—	21	28 02	S. W. l. br. hazy
17	8 30	21 33	19 47	—	—	20	28 02	S. W. fr. br. cl.
18	7 37	20 56	18 56	—	12 04	20	28 02	S. W. l. br. cl.
19	7 03	20 51	18 53	—	12 12	21	28 03	W. N. W. little wind, fair
20	6 07	20 48	—	—	—	21	28 02	N. W. l. br. hazy
21	5 21	20 31	—	—	11 15	20	28 02	{ S. S. W. l. br. rain. Saw some birds
22	4 42	19 44	—	—	—	20	28 03	S. S. W. fr. br. rain
23	3 41	19 21	16 10	16 22	12 30	20	28 03	S. W. gusts of wind, overcast
24	2 54	18 47	—	—	13 47	20	28 03	S. W. l. br. fair
25	2 22	18 20	14 26	—	—	20	28 03	S. S. E. l. br. rain
26	1 39	18 46	15 37	15 46	13 26	20	28 03	S. l. br. cl.
27	1 17	19 24	—	—	13 36	20	28 03	Ditto
28	0 50	20 12	17 31	—	—	19	28 02	{ S. S. E. fr. br. gusts of wind rain. d. n. 18° north
29	0 11	21 02	18 33	—	—	19	28 02	S. S. E. fr. br. rain. d. n. 17°
30	0 42	21 47	19 12	—	—	19	28 03	S. E. fr. br. cl. d. n. 17°
O. 1	1 43	22 10	19 41	—	9 50	19	28 03	S. E. l. br. fair. d. n. 16°
2	3 00	22 38	20 22	—	9 59	19	28 03	S. E. fr. br. fair
3	4 17	23 03	21 03	—	9 19	19	28 03	S. E. by E. fr. br. fair
4	5 37	23 32	21 42	—	8 18	19	28 03	S. S. E. fr. br. fair. d. n. 10°
5	6 50	24 00	22 12	—	8 43	19	28 03	S. E. fr. br. fair. d. n. 8½°
6	8 09	24 26	23 01	—	8 44	19	28 03	S. E. gusts of w. h. d. n. 7°
7	9 26	24 54	23 39	—	8 44	19	28 03	E. S. E. fr. br. ha. d. n. 3½°
8	10 57	25 25	—	—	5 50	19	28 04	{ E. S. E. gusts of w. cl. d. n. °° at 8 A. M.
9	12 14	25 56	—	—	5 30	18	28 04	E. S. E. fr. br. cl. d. n. 13° S.
10	13 43	26 18	25 23	—	5 14	18	28 03	S. E. by E. fr. br. fog. d. n. 30
11	14 29	26 40	25 47	25 24	4 07	18	28 03	S. E. l. br. hazy. d. n. 2½°
12	15 46	27 02	26 30	26 12	3 34	18	28 04	Ditto. d. n. 4°
13	17 03	27 24	27 14	—	5 14	17	28 04	E. S. E. fr. br. overc. d. n. 5½°
14	18 39	28 06	28 09	—	3 01	17	28 04	E. N. E. fr. br. fair. d. n. 8½°
15	20 23	28 51	28 52	—	1 46	17	28 03	N. E. fr. br. fair. d. n. 12½°
16	20 38	30 33	30 37	—	1 01	17	28 03	{ N. l. br. Saw the isles of Martin Vas, about 10 leagues W. 34° N. d. n. 13½°
17	20 39	31 24	—	—	0 57	—	—	{ N. N. W. l. br. fair. At 6 A. M. saw Trinidad Island, about 8 leagues W. 17° N.
18	20 39	31 24	31 19	—	1 00	14	28 02	N. N. W. l. br. hazy. d. n. 15°
19	21 01	33 15	—	—	—	18	28 02	S. S. E. fr. b. fair. d. n. 14½°
20	20 33	34 34	—	—	—	17	28 02	S. E. fr. br. overcast
21	20 34	35 21	—	—	1 42	17	28 02	S. E. l. br. rain. d. n. 17½°
22	20 28	36 33	—	—	1 54	17	28 03	S. S. E. fr. br. fair
23	20 29	37 53	37 33	—	—	16	28 04	S. E. l. br. fair. d. n. 13½°
24	21 27	38 38	—	—	3 32	16	28 03	E. N. E. l. br. fair. d. n. 11°
25	23 26	40 03	39 57	—	4 00	16	28 00	N. E. fr. br. rain. d. n. 17°
26	24 11	41 14	40 56	41 06	4 40	16	28 01	{ W. N. W. strong br. rain and thunder
27	25 03	42 41	41 26	41 45	4 55	17	28 00	W. N. W. fr. br. cl. d. n. 20°
28	24 45	42 41	54	—	4 55	17	28 02	Ditto. d. n. 20°
29	24 49	43 19	—	—	—	16	28 02	{ W. S. W. l. br. fair. d. n. 20½°

of the Atmosphere; Remarks.	South Latitude.	Computed West Longitude.	West Long. by the Time Keeper, No. 19.	West Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Wind; State of the Atmosphere; Remarks.
V. l. br. fair	30 25	32 44	55	—	6 30	16 1/2	28 01	{ E. N. E. l. br. fair. Saw some albatrosses
br. hazy	31 25	57 45	43	—	—	17 1/2	28 00	{ S. E. l. br. rain
r. br. cl.	31 26	48 47	01	46 41	9 05	16 1/2	28 02	{ S. E. fr. br. foggy
W. little wind, fair	32 27	33 48	05	—	9 50	15 1/2	28 01	{ N. N. E. l. br. fair
l. br. hazy	32 27	30 49	13	—	—	15	28 01	{ S. S. E. l. br. stormy, rain
W. l. br. rain. Saw birds	4 27	11 49	14	—	11 30	14 1/2	27 09	{ S. S. E. l. br. hazy. At 3 P. M. saw the continent of Brasil, about 10 leagues distant W. 15° S.
fr. br. rain	5 26	51 49	35	49 49	12 12	14 1/2	28 02	{ S. l. br. fair. Sounded in 37 and 40 fath. bottom land and mud. d. n. 29 1/2°.
guffs of wind, overcast	6 27	20 49	42	—	12 12	—	—	{ N. N. E. fr. br. fair. At 4 P. M. anchored at St. Catharine's in 7 fathoms, bottom land and mud
l. br. fair	7 At St. Cath.	—	—	—	—	15 1/2	—	{ S. fr. br. fair
l. br. rain	8	—	—	—	—	—	—	{ S. varying to the N. E. fr. br. fair
cle	9	—	—	—	—	—	—	{ N. N. E. l. br. fair. Changed our anchorage
E. fr. br. guffs of wind	10	—	—	—	—	—	—	{ N. N. E. fr. br. fair
d. n. 18° north	11	—	—	—	—	—	—	{ N. N. E. varying to the E.
fr. br. rain. d. n. 17°	12	—	—	—	—	—	—	{ S. E. fr. br. ft. rain
r. br. cl. d. n. 17°.	13	—	—	—	—	—	—	{ E. S. E. varying to the S.
br. fair. d. n. 16°.	14	—	—	—	—	—	—	{ fr. br. foggy
br. fair	15	—	—	—	—	—	—	{ S. l. br. hazy
by E. fr. br. fair	16	—	—	—	—	—	—	{ N. varying to the N. E. very little wind, fair
fr. br. fair. d. n. 10 1/2°	17	—	—	—	—	—	—	{ S. ft. thunder
fr. br. fair. d. n. 8 1/2°.	18	—	—	—	—	—	—	{ N. N. E. l. br. fair
guffs of w. h. d. n. 7°.	19	—	—	—	—	—	—	{ N. ft. thunder and lightning
fr. br. ha. d. n. 3 1/2°	20	—	—	—	—	—	—	{ N. almost a calm, ft.
E. guffs of w. cl. d. n. at 8 A. M.	21	—	—	—	—	—	—	{ S. S. W. very little wind, fair. Got under way at 5 A. M. at 10 a calm, anchored 2 leagues N. of the first anchoring place; failed at 2 P. M. d. n. 30 1/2°.
fr. br. cl. d. n. 13 1/2°	22	—	—	—	—	—	—	{ S. W. fr. br. cl.
E. fr. br. fog. d. n. 30	23	—	—	—	—	—	—	{ S. W. fr. br. fair
br. hazy. d. n. 2 1/2°.	24	—	—	—	—	—	—	{ N. E. a calm, fair
d. n. 4°.	25	—	—	—	—	—	—	{ N. E. fr. br. fair
fr. br. overc. d. n. 5 1/2°	26	—	—	—	—	—	—	{ S. E. l. br. hazy. d. n. 33°.
E. fr. br. fair. d. n. 8 1/2°	27	—	—	—	—	—	—	{ N. E. l. br. hazy
r. br. fair. d. n. 12 1/2°	28	—	—	—	—	—	—	{ N. E. varying to the E. S. E. very little wind, fair
br. Saw the isles of Martin Vas, about 10 leagues	29	—	—	—	—	—	—	{ E. l. br. rain
34° N. d. n. 13 1/2°.	30	—	—	—	—	—	—	{ S. guffs of wind, cl.
W. l. br. fair. At A. M. saw Trinidad and, about 8 leagues	31	—	—	—	—	—	—	{ W. l. br. d. n. 41°
17° N.	32	—	—	—	—	—	—	{ N. N. W. very little w. fr.
W. l. br. hazy. d. n. 15	33	—	—	—	—	—	—	{ W. N. W. fr. br. fair. d. n. 43°
fr. br. fair. d. n. 14	34	—	—	—	—	—	—	{ S. S. W. fresh br. rain
br. overcast	35	—	—	—	—	—	—	{ Ditto. d. n. 44 1/2°.
br. rain. d. n. 17 1/2°	36	—	—	—	—	—	—	{ S. W. fresh br. fair
fr. br. fair	37	—	—	—	—	—	—	
br. fair. d. n. 13 1/2°	38	—	—	—	—	—	—	
l. br. fair. d. n. 11	39	—	—	—	—	—	—	
fr. br. rain. d. n. 17	40	—	—	—	—	—	—	
N. W. strong br. rain	41	—	—	—	—	—	—	
thunder	42	—	—	—	—	—	—	
W. fr. br. cl. d. n. 20	43	—	—	—	—	—	—	
d. n. 20°.	44	—	—	—	—	—	—	
S. W. l. br. fair. d. n.	45	—	—	—	—	—	—	
	46	—	—	—	—	—	—	

LA PÉROUSE'S VOYAGE

Dec. 1786, and Jan. 1787.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Dif. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.			
D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	
D. 5	42	31	36	51	—	—	7 34	10 28	2	W. N. W. fresh br. fair	
6	43	48	36	27	—	—	8 32	8 27	10	S. W. fresh br. overcast	
7	44	34	35	38	33	09	6 59	6 27	11	Ditto. d. n. 50°	
8	45	03	35	28	—	—	—	7 27	11	N. W. little wind, fair	
9	44	13	35	45	34	44	35 50	9 27	10	W. N. W. gusts of wind, rain	
10	44	44	36	39	—	—	8 27	9 27	9	N. fresh br. fair	
11	44	51	37	12	34	09	—	5 27	5	S. W. squally weather, rain	
12	44	38	38	02	—	—	—	7 28	0	N. N. W. fresh br. rain	
13	45	19	38	52	—	—	8 33	7 27	10	S. W. by W. gusts of w. rain	
14	44	03	39	10	—	—	9 20	7 28	1	N. W. l. br. fair. d. n. 51°	
15	43	27	40	16	36	26	8 32	8 28	4	W. S. W. fresh br. fair	
16	44	13	41	34	—	—	—	9 27	10	N. N. E. very little wind, cl.	
17	44	42	41	49	38	06	10 47	7 28	2	W. l. br. fair	
18	44	53	42	55	39	25	11 52	7 27	0	W. N. W. l. br. foggy	
19	44	35	44	32	—	—	11 56	10 28	1	Ditto	
20	44	47	45	35	44	25	12 16	9 28	0	W. N. W. l. br. foggy	
21	44	50	46	26	—	—	—	9 28	0	W. N. W. l. br. hazy	
22	44	44	46	39	44	08	12 53	9 28	0	N. W. l. br. hazy	
23	43	26	46	58	—	—	12 39	10 27	10	W. S. W. l. br. fair	
24	43	26	47	37	—	—	13 58	10 28	0	W. S. W. l. br. fair	
25	42	23	48	10	—	—	—	10 27	7	S. W. l. br. rain	
26	42	23	48	37	—	—	—	9 28	0	S. S. W. squally w. fair	
27	42	42	49	12	47	50	13 50	9 28	0	S. S. E. a calm, rain	
28	42	2	49	9	47	59	—	10 27	11	S. E. almost a calm, fair	
29	41	45	51	6	48	57	14 47	10 27	18	N. W. very little wind, fair	
30	42	9	51	58	49	20	14 17	10 28	0	S. S. W. gusts of wind, rain	
31	42	19	53	7	—	—	—	10 28	1	W. N. W. fr. br. cl. d. n. 50°	
1286											
I. 1	41	33	53	27	51	5	15 19	12 28	0	S. W. l. br. fair	
2	41	29	54	19	52	11	—	14 28	2	N. N. W. fr. br. fair. d. n. 51°	
3	41	35	55	50	53	20	16 45	14 27	11	W. fr. br. fair. d. n. 51½°	
4	42	45	56	50	54	42	55 47	16 11	10 28	0	N. N. E. l. br. fair
5	43	38	58	11	55	44	4 17	44	12 27	9	N. N. W. fresh br. cl.
6	44	44	59	0	—	—	17 9	12 27	9	W. S. W. a calm, fair	
7	44	55	59	51	57	23	17 21	10 27	11	N. W. gusts of wind, cl.	
8	45	31	60	48	58	17	18 18	10 27	6	S. W. fr. br. fair. d. n. 55½°	
9	46	48	61	48	59	47	18 45	9 27	6	W. by N. l. br. fair	
10	47	47	62	17	—	—	—	8 27	5	S. W. by W. fresh br. hazy	
11	48	12	62	4	60	36	21 26	10 27	11	S. W. fresh br. fair	
12	47	58	63	22	61	15	20 19	8 27	8	S. S. W. very little wind, fair. d. n. 59½°	
13	46	50	64	20	—	—	22 24	8 28	2	S. S. W. squally w. fair	
14	47	60	65	44	—	—	22 0	10 27	8	S. W. l. breeze, fair	
15	48	55	66	59	—	—	21 46	10 27	5	W. N. W. fr. br. fair. d. n. 59½°	
16	49	40	67	7	64	43	20 16	9 27	11	N. W. l. br. fair	
17	50	5	68	1	—	—	21 25	7 28	1	S. S. E. fr. br. fair. d. n. 52½°	
18	48	56	68	41	66	43	21 20	9 28	4	S. l. br. fair	
19	50	15	69	27	67	39	21 54	9 28	5	N. E. l. br. fair	
20	50	57	70	45	68	48	21 22	8 28	2	N. W. very little wind, fair	
21	51	35	71	8	—	—	22 47	9 28	0	S. S. E. l. br. fair. At 4 A.M. saw the coast of Patagonia.	
22	52	31	70	58	68	55	23 49	10 28	2	N. l. br. fair. Cape Fair Weather, about 5 leag. distant, W. 26° S. d. n. 62°	

Dec. 1786, and Jan. 1787.	South Latitude.	Computed Longitude West.
	D. M.	D. M.
13	53	40 70
14	54	33 69
15	55	26 67
16	57	13 68
17	57	59 69
18	57	58 70
19	58	22 72
20	57	54 72
21	58	21 72
22	58	3 73
23	58	24 74
24	58	51 76
25	58	50 76
26	59	48 77
27	60	38 78
28	59	20 80
29	58	38 81
30	57	21 84
31	56	01 86
1287	53	39 87
1	53	05 87
2	51	17 88
3	49	58 87
4	48	03 87
5	45	17 87
6	43	25 86
7	42	13 85
8	41	04 84
9	39	54 83
10	39	8 81
11	37	51 80
12	36	42 80
13	36	43

Latitude
of the ob-
servatory
at Talca-
guana.

ROUND THE WORLD.

7

Remarks.

r. fair
ercast

fair
wind, rain

er, rain
rain

of w. rain
d. n. 51°

r. fair
wind, cl.

foggy
foggy

fair
fair

y. fair
rain

n, fair
wind, fair

wind, rain
l. d. n. 50°

d. n. 51°
n. 51°

r. cl.
fair

nd, cl.
d. n. 55½°

ir
br. hazy.

ittle wind,
fair

ir
d. n. 59½°

d. n. 52½°

wind, fair

At 4 A.M.
Patagonia.

Fair Wea-
g. distant,
62°

Lat. and Long. by the Time Keeper, No. 19.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Diff. of the No. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
23 53	40 70	3 68	6 68	6 20	10	8 ½	28 2	{ W. l. br. fr. The land nearest in sight bearing S. 4° W. at about 4 leagues distance.
24 54	39 69	3 66	4 1 68	4 21	0 10	28 1		{ N. W. l. br. fr. Cape St. Vincent bore E. 11° S. at about 4 leagues distance. Left the Sts. of Le Maire. d. n. 63½°
25 55	48 68	0		21	0	27 8		{ S. W. fr. br. fair. d. n. 63½°
26 57	13 68	25 66	36			6	27 7	{ W. gusts of wind, cl.
27 57	59 69	17		20	30	4 ½	27 3	{ W. S. W. fr. br. foggy, heavy sea. d. n. 64½°
28 57	58 70	38 68	18			4 ½	27 4	{ S. S. E. squally wind, cl.
29 58	22 72	7				4 ½	27 4	{ W. fresh br. rain. d. n. 67½°
30 57	54 72	27		22	30	5	27 4	{ W. S. W. fr. br. cl.
31 58	23 72	43				6	27 6	{ W. by N. very little wind, a fog. d. n. 66½°
1 58	3 73	26 71	25	23	28	6	27 7	{ W. l. br. cl. d. n. 66½°
2 58	24 74	37		25	39	6	27 4	{ N. fresh br. driz. d. n. 68°
3 58	51 76	17		25	0	6	27 4	{ N. fresh br. cl.
4 58	50 76	42		24	30	4 ½	27 1	{ W. gusts of wind, rain
5 59	48 77	23				4 ½	27 5	{ W. N. W. fr. br. rain. d. n. 70°
6 59	38 78	32 77	21			4 ½	26 11	{ W. l. breeze, overcast
7 59	20 80	26 78	41			3 ½	27 4	{ S. W. fr. br. snow. d. n. 72½°
8 58	38 81	42 79	52			3 ½	27 1	{ S. E. squally weather, cl.
9 57	21 84	36 82	38			5	27 04	{ S. S. W. squally w. cl. d. n. 71½°
10 56	01 86	23		20	50	4 ½	27 05	{ S. W. fresh breeze, fair
11 53	39 87	23 84	10			5 ½	27 09	{ Ditto
12 53	05 87	55 84	14	22	29	4 ½	27 09	{ S. W. fr. br. cl. d. n. 68°
13 51	17 88	01		20	08	5 ½	27 06	{ S. W. squally wind, rain. d. n. 67½°
14 49	58 87	58				5 ½	27 10	{ W. fresh breeze, rain
15 48	03 87	38				7	27 08	{ Ditto. d. n. 64½°
16 45	17 87	18 82	22	17	30	7	27 09	{ S. S. W. fr. br. fair. d. n. 63°
17 43	25 86	27 81	24			9 ½	28 01	{ W. fr. br. foggy. d. n. 60½°
18 42	13 85	55 80	36	14	27	10 ½	28 01	{ W. l. br. fair. d. n. 58°
19 41	04 84	55 79	20 80	25	14	10	28 01	{ S. W. fr. br. fair. d. n. 57½°
20 39	54 83	31 77	42 78	32	14	23 10 ½	28 02	{ W. S. W. l. br. fair. d. n. 54½°
21 39	8 81	56 76	17 77	18	14	29 13	28 03	{ S. S. W. l. breeze, fair. Saw land a-head
22 37	51 80	50 75	13 76	10	15	44 13	28 03	{ S. fr. br. fair. At 8 A.M. the coast of Chili, which we had seen on the 21st, bore E. N. E. distant about 6 leagues. d. n. 52°
23 36	42 80	15 75	00 75	53	15	30 12 ½	28 01	{ S. fr. br. fair. The Mamelons of Biobio bore E. 20° S. At 6 P.M. founded in 16, 15, and 14 fathoms. At 8 P.M. anchored in the bay of Talcahuano, in 11 fath. bottom of clay, or sand and mud. d. n. 50°
24 36	43	—	75 30	—	—	9 ½	28 01	{ S. S. W. very little wind. Anchored further in the bay, in 6½ fathoms; bottom sand and mud

Latitude of the observatory at Talcahuano.

Longitude of the observatory at Talcahuano.

Feb. March, and April, 1796.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the alt. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Wind; State of the Atmosphere; Remarks
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
	Latitude at Caiaguana		Long. at Caiaguana					
Feb. 25	36 41	—	75 30	—	—	—	—	{ Wind varying to the W S. W. l. breeze, fair
26	Ditto	—	—	—	—	—	—	S. W. l. br. fair. d. n. 50
27	Ditto	—	—	—	—	—	—	S. S. W. l. br. fair
28	Ditto	—	—	—	—	—	—	Ditto
M. 1	Ditto	—	—	—	—	—	—	Ditto
2	Ditto	—	—	—	—	—	—	S. W. l. br. fair
3	Ditto	—	—	—	—	—	—	Ditto
4	Ditto	—	—	—	—	—	—	Ditto
5	Ditto	—	—	—	—	—	—	Ditto
6	Ditto	—	—	—	—	—	—	Ditto
7	Ditto	—	—	—	—	—	—	S. S. W. l. br. fair
8	Ditto	—	—	—	—	—	—	Ditto
9	Ditto	—	—	—	—	—	—	S. W. l. br. fair
10	Ditto	—	—	—	—	—	—	Ditto
11	36 43	—	75 30	—	15 15	—	—	S. S. W. l. br. fair
					Observed at the ob- servatory with the compasses Nos. 1, 2, and 3.			
12	Ditto	—	—	—	—	—	—	S. W. l. br. fair
13	Ditto	—	—	—	—	—	—	S. S. W. very little wind, fair
14	Ditto	—	—	—	—	—	—	N. l. br. foggy
15	Ditto	—	—	—	—	—	—	N. varying to the N. N. W.
16	Ditto	—	—	—	—	—	—	N. fresh br. rain
17	Ditto	—	—	—	—	—	—	S. S. E. very little wind, fair
18	36 27	75 34	—	—	15 14 11	28 02	—	{ S. fr. br. Sailed from T cagua, on the coast Chili, at 1 P. M.
19	35 28	76 44	—	—	—	28 03	—	S. fresh br. fair
20	33 44	78 57	—	—	14 11 11	28 2	—	S. S. W. fr. br. fair. d. n. 4
21	32 32	81 21	—	—	—	13	28	S. fresh br. fair. d. n. 48
22	31 28	83 34	—	—	—	13 1/2	28	S. S. E. fresh br. fair
23	30 3	86 1	85 52	85 39	16 50 14	28 4	28	E. fresh br. overcast, rain
24	29 45	87 54	87 44	87 33	14 0 15	28 2	28	S. S. E. fresh br. fair
25	29 12	89 34	89 12	89 14	10 2 14 1/2	28 2	28	S. E. fresh br. rain. d. n. 4
26	28 31	91 15	90 52	—	9 0 15	28 4	28	S. E. fresh br. fair
27	27 56	93 27	—	—	7 50 16 1/2	28 5	28	E. S. E. fresh br. cl. d. n.
28	27 33	95 52	—	—	—	16	28	E. fresh br. cl.
29	27 16	97 51	97 49	—	6 15 17	28 4	28	E. fresh br. hazy
30	27 7	99 36	99 11	—	6 22 16 1/2	28 3	28	{ E. S. E. light breeze, rain d. n. 42 1/2
31	27 1 101 37	101 1	—	—	5 5 17	28 4	28	S. E. fresh br. fair. d. n. 4
A. 1	27 4 103 37	103 2	—	—	6 31 17 1/2	28 4	28	Ditto d. n. 4
2	27 9 105 55	105 17	—	—	5 44 18	28 4	28	E. fresh br. cl.
3	27 5 107 41	107 19	—	—	—	18	28	N. E. fresh br. fair. d. n.
4	27 12 109 30	108 49	—	—	—	19	28	N. l. breeze, fair
5	27 5 109 46	—	—	—	—	19 1/2	28	N. l. breeze, cl.
6	27 2 109 41	109 22	—	—	—	19	28	W. N. W. strong br. rain
7	26 5 110 1	109 53	—	—	—	18	28	S. E. l. breeze, rain
8	27 9 111 16	110 56	—	—	—	17	28 1	{ N. E. fr. br. fair. At 3 P. saw Easter Island, bearing W. by S. about 12 leagues distant

April and May, 1796.	South Latitude.	Com- puted Long. West.
	D. M.	D.
A. 9 27	9 112	
	Latitude of Easter Island at the Ancho- Place.	
10 27	9 111	
11 26	24 112	
12 25	0 111	
13 23	22 111	
14 21	47 111	
15 20	34 111	
16 19	4 111	
17 17	30 112	
18 16	1 112	
19 14	8 112	
20 12	15 112	
21 10	7 112	
22 8	19 112	
23 6	36 112	
24 5	26 113	
25 4	17 114	
26 3	21 114	
27 2	15 115	
28 0	54 116	
	Lat. N.	
29 0	18 116	
30 1	40 117	
M. 1 2	59 118	
2 4	6 118	
3 5	7 119	
4 5	49 119	
5 6	11 119	
6 7	6 120	
7 8	17 121	
8 9	25 122	
9 10	44 123	
10 11	53 124	
11 13	34 125	
12 14	46 126	
13 16	20 127	
14 17	48 129	
15 19	11 130	
16 19	51 132	
17 19	59 133	
18 20	03 135	
19 20	03 136	
20 19	58 138	
21 19	57 140	
22 20	02 142	

Day.	Month.	Year.	North Latitude.	Computed Longitude.	West Long. by the Time.	West Long. by the Time of the Sun.	Variation of the Needle E. S.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.					
D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.					
19	27	9	112	18	111	51	—	—	17	128	6	S. S. E. fresh br. fair. At 1 P. M. anchored at Easter Island, in 36 fathoms; bottom fine grey sand			
			Latitude of Easter Island at the Anch. Place.		Longitude of Easter Island at the Anch. Place.										
10	27	9	111	56	111	56	—	3	10	17	128	2	S. S. E. l. br. fr. At 8 P. M. sailed from Easter Island		
11	26	24	112	6	111	51	—	2	26	17	128	3	S. S. E. l. br. fair. <i>d. n.</i> 41°		
12	25	0	111	59	111	52	—	3	11	17	128	3	S. S. E. l. breeze, fair. Saw Easter Island, distant 20 leagues. <i>d. n.</i> 40½°		
13	23	22	111	57	111	47	—	3	58	17	128	3	S. E. fresh br. fair. <i>d. n.</i> 38½°		
14	21	47	111	51	111	54	—	3	40	17	128	2	S. E. l. br. fair. <i>d. n.</i> 34°		
15	20	34	111	45	111	52	—	4	32	18	128	3	E. S. E. l. br. fair. <i>d. n.</i> 33°		
16	19	4	111	50	112	14	—	4	46	19	128	3	E. N. E. l. br. fair. <i>d. n.</i> 32°		
17	17	30	112	18	112	55	—	4	20	19	128	3	N. E. fresh br. cl. <i>d. n.</i> 27°		
18	16	1	112	31	112	6	—	4	52	18	128	3	E. N. E. fresh br. fair		
19	14	8	112	29	112	16	—	4	50	19	128	2	E. fresh br. cl.		
20	12	15	112	25	112	31	113	5	5	19	128	2	E. S. E. fr. br. fair. <i>d. n.</i> 20°		
21	10	7	112	23	112	28	113	5	23	19	128	2	E. fresh br. fair		
22	8	19	112	39	114	10	—	—	20	128	2	2	E. S. E. fr. br. fair. <i>d. n.</i> 12½°		
23	6	36	112	56	114	40	114	—	21	128	1	1	S. E. fresh br. fair. <i>d. n.</i> 11°		
24	5	26	113	23	115	43	—	—	20	128	2	2	S. S. E. l. br. fair. <i>d. n.</i> 7°		
25	4	17	114	9	116	49	—	3	35	20	128	3	3	S. E. l. breeze, fair. <i>d. n.</i> 6½°	
26	3	21	114	53	117	49	—	3	9	20	128	2	2	E. S. E. l. br. fair. <i>d. n.</i> 2½°	
27	2	15	115	26	118	26	—	2	21	20	128	1	1	E. fresh breeze, fair. <i>d. n.</i> 2½°	
28	0	54	116	2	118	45	—	2	6	20	128	1	1	S. S. E. l. br. fair. <i>d. n.</i> 1°	
			Lat. N.												
29	0	18	116	33	118	0	—	2	58	19	128	1	1	S. E. l. breeze, fair. <i>d. n.</i> 0	
30	1	40	117	11	119	7	—	1	121	28	1	1	1	Ditto <i>d. n.</i> ½°	
31	2	59	118	0	119	53	—	—	21	28	1	1	1	Ditto <i>d. n.</i> 1°	
1	2	4	6	118	54	120	35	—	—	21	28	1	1	Ditto <i>d. n.</i> 1° 50'	
2	5	7	119	32	121	14	—	0	44	21	28	1	1	Ditto	
3	5	49	119	46	121	2	—	1	21	28	1	1	1	Ditto <i>d. n.</i> 5°	
4	5	6	119	55	—	—	—	1	35	21	128	1	1	E. N. E. very little wind, fair	
5	6	11	119	55	—	—	—	—	21	28	1	1	1	N. E. l. br. fair. <i>d. n.</i> 6°	
6	7	6	120	50	121	46	—	—	21	28	1	1	1	E. light breeze, rain	
7	8	17	121	33	122	55	—	—	21	28	1	1	1	N. E. l. br. cl. <i>d. n.</i> 10°	
8	9	25	122	11	123	54	—	3	17	21	128	1	1	N. E. fresh br. cl. <i>d. n.</i> 13°	
9	10	44	123	25	125	34	—	—	21	28	2	1	1	N. E. fresh br. fair. <i>d. n.</i> 18°	
10	11	53	124	36	127	01	—	2	28	20	28	2	1	Ditto <i>d. n.</i> 21°	
11	13	34	125	39	128	19	—	—	20	28	2	1	1	N. E. fresh br. cl. <i>d. n.</i> 23°	
12	14	46	126	46	129	38	—	—	19	28	2	1	1	Ditto <i>d. n.</i> 28°	
13	16	20	127	59	131	51	—	—	19	28	3	1	1	Ditto <i>d. n.</i> 29°	
14	17	48	129	13	132	35	—	—	16	28	3	1	1	E. N. E. squally weather, cl.	
15	19	11	130	27	134	01	—	4	0	16	28	3	1	1	N. E. fr. br. fair. Saw the trunk of a tree. <i>d. n.</i> 33°
16	19	51	132	22	135	50	—	—	16	28	3	1	1	1	E. N. E. l. br. varying to the N. E. fair <i>d. n.</i> 31°
17	19	59	133	34	137	36	—	—	17	28	3	1	1	1	E. N. E. light breeze, fair
18	20	03	135	09	139	00	—	6	38	17	28	3	1	1	E. fr. br. ft. rain. <i>d. n.</i> 33°
19	20	03	136	51	140	52	140	6	51	16	28	3	1	1	E. N. E. fresh breeze, fair
20	19	58	138	33	142	31	142	—	17	28	3	1	1	1	E. fresh br. fair. <i>d. n.</i> 32½°
21	19	57	140	12	144	11	144	8	20	17	28	3	1	1	E. N. E. fresh breeze, fair
22	20	02	142	16	146	24	—	9	0	17	28	3	1	1	E. N. E. fresh breeze, fair

May and June, 1786.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Sun, from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
May 23	D. M. D. M. D. M.	D. M. D. M.	D. M. D. M.	D. M. D. M.	D. M. D. M.	D. M. D. M.	D. L. P.	E. fresh breeze, fair
24	20 07 143 32	148 07	—	9 18 16	18	18	4	Ditto <i>d. n.</i> 31°
25	20 47 143 54	150 26	—	—	18	18	4	E.N.E. fr. br. fair. <i>d. n.</i> 31°
26	21 00 150 04	154 34	—	9 20 18	18	18	4	Ditto
27	21 03 151 54	156 12	—	—	18	18	4	E. fresh breeze, fair
28	20 50 152 56	157 19	—	—	18	18	4	E. light breeze, cl. At A. M. saw the Sandwich Islands. <i>d. n.</i> 33°
29	20 34 153 56	158 19	158 25	—	8 40 18	18	4	E.N.E. l. br. fair. Running along the ile of Mowee a long dist. that of Tahoro bore W. 15° 8. at or 6 leagues distance. Anchored at 1/2 past 5 P. M. in the bay at the S.E. end of the ile of Mowee, in 3 fathoms, bottom fine green sand. <i>d. n.</i> 28°
30	—	—	—	—	8 34 8 51	19	28 4	E. varying to the E. S. E. fresh breeze. Sailed at A. M. from Mowee
31	21 15 159 34	159 41	—	—	—	20	28 4	S.E. varying to the E.S.E. and E. N. E. fr. br. At P. M. the island Wohoo bore S. at about 7 league distance. <i>d. n.</i> 20°
J. 1	22 53 159 59	160 21	—	—	18	18	5	N. E. varying to E. N. E. fresh breeze, fair. <i>d. n.</i> 34°
2	24 49 160 05	160 23	160 16	8 42	—	18	5	E. N. E. fr. br. fair. <i>d. n.</i> 34°
3	26 29 160 25	161 00	—	—	18	18	6	Ditto <i>d. n.</i> 38°
4	28 02 160 45	161 15	—	10 27 18	18	18	5	E. N. E. fresh br. squally, rain
5	29 09 160 45	161 15	—	11 0 19	18	18	4	E. N. E. varying to the S. E. light breeze, fair
6	30 47 160 22	160 40	—	11 15 17	18	18	2	S. E. varying to the S. fresh breeze, fair. <i>d. n.</i> 44°
7	32 15 159 56	161 30	—	—	16	18	2	S. W. squally, much rain
8	33 54 159 34	159 31	—	11 40 16	18	18	4	S. fresh breeze, cl. <i>d. n.</i> 49°
9	34 57 159 03	—	—	—	15	18	5	S. varying to the W. N. W. fresh breeze, rain
10	35 51 158 43	—	—	—	15	18	5	S. l. br. fog and rain. <i>d. n.</i> 53°
11	37 02 158 34	—	—	—	12	18	5	S. varying to the E. N. E. fresh br. rain. <i>d. n.</i> 51°
12	38 02 158 15	—	—	—	12	18	4	E. varying to the S. W. breeze, rain
13	39 19 157 47	—	—	—	12	18	5	S. S. W. fr. br. rain and fog. <i>d. n.</i> 53°
14	41 17 157 3	156 15	—	—	11	18	3	S. W. fresh br. very foggy. <i>d. n.</i> 56°
15	43 12 155 48	154 54	—	—	8	18	1	W. fresh br. fair. <i>d. n.</i> 59°
16	44 59 154 25	—	—	—	7	18	1	W. N. W. fresh br. hazy. <i>d. n.</i> 60°
17	46 52 152 58	—	—	—	7	18	2	W. fresh br. cl. <i>d. n.</i> 61°
18	48 22 152 4	149 42	—	—	5	18	1	W. varying to the S. W. squally, rain. <i>d. n.</i> 64°
19	50 5 151 10	148 29	—	22 50	5	27	1	W. S. W. fr. br. squally, rain at intervals. <i>d. n.</i> 66°

July and Aug., 1786.	North Latitude.	Computed Longitude West.	Remarks.
July 10	51 50	150	
11	53 17	149	
13	55 41	147	
17	46	146	
24	59 22	145	
25	59 33	142	
26	59 41	143	
27	59 18	142	
28	59 20	142	
29	59 20	142	
30	58 54	141	
July 1	59 7	141	
2	58 38	140	
3	58 38	140	Lat. at the anchoring place.

State of the Atmosphere; Remarks.

fair
14°
fair. d. n. 31°
fair
reeze, cl. At
the Sandwich
n. 33°
r. fair. Running
ile of Mowee
that of Tahoe
W. 15° S. at
distance. An
½ past 5 P. M.
at the S.E. end
of Mowee, in a
bottom fine gre
28°
to the E. S. E.
e. Sailed at
m Mowee
g to the E. S. E.
E. fr. br. At
island Wohao
about 7 league
d. n. 20°
ing to E. N. E.
e, fair. d. n. 34°
r. fair. d. n. 38°
br. squally, rain
ying to the S. E.
e, fair
g to the S. fr.
r. d. n. 44°
much rain
cl. d. n. 49°
to the W. N. W.
e, rain
d rain. d. n. 53°
to the E. N. E.
in. d. n. 51°
to the S. W.
n
br. rain and fog
br. very foggy
fair. d. n. 59°
fresh br. hazy
cl. d. n. 61°
to the S. W.
in. d. n. 64°
br. squally, rain
s. d. n. 66°

Lat. and Long. by the time of the day.	North Latitude.	Computed Longitude West.	West Long. by the time of the day.	West Long. by the time of the day.	Variation of the Needle East.	Hour.	Barom.	Wind; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D. P. I.	
	51	50	150 17	147 27	148 4	32 38	5 1	27 9
	51	53	149 31	—	—	34 49	5 1	28 1
	51	55	147 48	145 8	—	35 30	5 1	28 1
	51	57	146 0	143 42	—	37 40	6 1	28 1
	59	22	145 3	143 4	—	—	11	28 0
	59	33	142 53	142 37	—	—	7 1	28 0
	59	41	143 23	142 47	—	31 14	6	28 1
	59	18	142 41	—	—	32 19	5 1	27 8
	59	20	142 35	142 35	—	—	7	27 11
	59	20	142 2	—	—	—	7	27 11
	58	54	141 43	141 21	—	32 34	6	28 0
	59	7	141 3	140 52	—	31 22	7	28 2
	58	38	140 28	—	—	30 34	7 1	28 3
	58	38	140 22	139 46	—	—	5 1	28 2

Lat. at the anchoring place.

Long. at the anchoring place.

July, 1786.	North Latitude.	Computed West Longitude.	West Long. by the fine Keeper, No. 19.	West Long. by the dis. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 4	At anchor in Port des Français.	—	—	—	—	6	27 9	N. W. fr. breeze. Shifted anchor this day; Cenotaph Island bore E. 27° N. and the mouth of the harbour S. 20° E.
5	At anchor in a creek N. W. of Port des Français.	—	—	—	—	8	28 1	S. W. varying to the N. W. very little wind. Shifted anchor to get clear of the mouth of the harbour. <i>d. n. 74¹⁰</i>
6	At anchor in the in- ner extre- mity of Port des Français.	—	—	—	—	6	28 1	E. S. E. Set sail and anchor- ed at the top of the har- bour, in 13 fathoms, bot- tom muddy; the middle of Cenotaph Island bore S. E. half a cable's length distant; the mouth of the harbour, by the S. W. point of the island, bore S. 15° W.
7	Ditto	—	—	—	—	8 $\frac{1}{2}$	28 2	E. varying to S. E. l. br. fair
8	Ditto	—	—	—	—	7 $\frac{1}{2}$	28 2	W. N. W. little wind, fair
9	Ditto	—	—	—	—	8	27 30	A calm, rain
10	Ditto	—	—	—	—	—	—	N. W. little wind, hazy
11	Ditto	—	—	—	—	—	—	W. N. W. very little wind, fair
12	Ditto	—	—	—	—	—	—	E. N. E. very little wind, fair
13	Ditto	—	—	—	—	—	—	E. light breeze, fair
14	Ditto	—	—	—	—	—	—	W. N. W. little wind, fair
15	Ditto	—	—	—	—	—	—	W. varying to W. S. W. little wind. At 4 A. M. made sail for the mouth of the harbour. At 8 A. M. anchored in 46 fathoms, bottom muddy
16	Latitude of the obser- vatory.	—	—	—	—	—	—	E. N. E. very little wind. At 4 A. M. sailed, and an- chored at 10, waiting for the tide in 15 fathoms, bottom muddy
17	—	—	—	—	—	8	27 10	E. l. breeze, rain. Squally wea. in the night, mouth of the harb. bore S. by W.
18	At anchor in Port des Français.	—	—	—	—	11	27 8	E. N. E. fr. br. squally, rain
19	Ditto	—	—	—	—	7 $\frac{1}{2}$	27 11	E. S. E. squally, hazy, rain
20	Ditto	—	—	—	—	5	28 3	E. l. br. varying to N. W. hazy
21	At anchor in the mouth of Port des Français.	—	—	—	—	6 $\frac{1}{2}$	28 2	W. N. W. very little wind. At 8 A. M. set sail, and at 11 A. M. anchored in the N. E. creek, in 9 fa- thoms water; bottom fine sand. The mouth of the harbour bore S. 30° E. and the middle of Cenotaph Island, N. 43° E. 2 leng. distant

State of the Atmosphere; Remarks.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Dial. of the Mo. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. I.	
W. fr. breeze. Shifted hor this day; Cenotaph and bore E. 27° N. and mouth of the harbour 20° E.	As anchor at the mouth of Port des Français.	—	—	—	—	6 1/2	28 4	{ W. N. W. l. breeze, fair. The tide not perceptible at this anchorage
W. varying to the N. W. y little wind. Shifted hor to get clear of the outh of the harbour. 7. 74 1/2°	Ditto	—	—	—	—	7	28 3	{ W. S. W. very little wind, fr. E. S. E. varying to E. E. t. br. fair. d. n. 73 1/2°
E. Set sail and anchor. at the top of the har- bor, in 13 fathoms, bot- om muddy; the middle Cenotaph Island bore E. half a cable's length ant; the mouth of the bour, by the S. W. nt of the island, bore 15° W.	Ditto	—	—	—	—	7 1/2	28 3	{ E. S. E. l. br. hazy E. N. E. l. br. rain E. varying to the N. E. fresh breeze, rain
W. little wind, fair rain	Ditto	—	—	—	—	8	28 1	{ N. E. light breeze, rain N. E. a calm, rain
W. little wind, hazy	Ditto	—	—	—	—	7 1/2	27 11	{ W. N. W. l. br. Prepared for sailing
W. very little wind, fair	Ditto	—	—	—	—	6	27 11	{ W. N. W. very little wind, fair. Set sail at 4, P. M.
W. very little wind, fair	Ditto	—	—	—	—	5 1/2	28 0	{ W. N. W. l. br. fair. At noon the mouth of Port des Français bore N. 10° W. about 4 leagues distant
W. breeze, fair	Ditto	—	—	—	—	6	28 1	{ N. W. varying to S. S. W. very little w. fair. Mount Fairweather bore N. 19° W. the mouth of Port des Français N. 10° W.
W. little wind, fair	Ditto	—	—	—	—	5	28 2	{ W. very little wind, hazy. The entrance of the bay of Croix found bore N. 48° E. dist. about 8 leagues
W. varying to W. S. W. le wind. At 4 A. M. le sail for the mouth of harbour. At 8 A. M. hored in 46 fathoms, tom muddy	158 22 139 46	—	—	31	0	8	28 2	{ E. varying to the S. S. W. by S. very little wind. The nearest land bore N. 45° E. dist. about 6 leag.
E. very little wind. At A. M. failed, and an- dered at 10, waiting for tide in 15 fathoms, tom muddy	158 24 139 40	—	—	—	—	—	—	{ E. very little wind, foggy W. N. W. very little wind, fair. The entrance of Port de los Remedios bore E. 32° N. dist. about 6 leag.
W. breeze, rain. Squally in the night, mouth ne harb. bore S. by W.	358 12 139 31	—	—	30	20	—	—	{ N. E. very little wind, fair. Mount Hyacinth bore N. 56° W. and Cape Tchiri- kow E. 23° S. d. n. 73 1/2°
E. fr. br. squally, rain	57 24 138 0	—	—	—	—	9	28 2	{ W. l. br. fair. Cape Tchir- rikow bore N. 38° W. distant about 3 leagues
W. squally, hazy, rain varying to N. W. hazy	657 18 138 13	138 32	—	28	37	8 1/2	28 1	{ W. fr. br. hazy. The middle of Isle San Carlos bore N. 27° E. dist. about 2 leag.
N. W. very little wind.	756 30 137 19	137 25	—	28	20	9 1/2	28 1	{ W. N. W. fr. br. very thick fog N. N. W. l. br. foggy.
8 A. M. set sail, and 1 A. M. anchored in N. E. creek, in 9 fa- ms water; bottom fine	54 23 135 27	135 3	—	—	—	9	28 2	{ Ditto
l. The mouth of the bour bore S. 30° E. and middle of Cenotaph nd, N. 43° E. 2 leag. unt	54 12 135 21	135 14	—	—	—	9	28 2	{ S. very little wind, foggy S. varying to the E. S. E. very thick fog. Saw land this day, at about 8 or 10 leagues distance
	54 6 136 11	—	—	30	14	8 1/2	28 1	{
	54 4 136 15	—	—	—	—	9	28 1	{
	53 50 135 51	135 46	—	—	—	9 1/2	28 3	{

August, 1796.	North Latitude.		Computed Longitude West.		West Long. by the Time Keeper, No. 19.		West Long. by the Diff. of the Mo. from the Sun.		Variation of the Needle East.		Ther.	Barom.	Winds; State of the Atmosphere; Remarks.	
	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.			
A. 15	53	50	135	40	135	59	—	—	9	28	3			E. l. br. hazy. At 10 A. M. saw land from N. E. to about 10 leagues distant. At noon, foggy.
16	53	20	136	17	—	—	—	—	10	28	1			E. l. br. hazy. Saw land this day, 8 or 10 leag. distant. Foggy at intervals. N. E. very little wind, hazy. At half past 5 A. M. the land bore from N. E. to E. S. E. distant about 8 leagues. At noon foggy.
17	53	12	136	7	136	36	—	27	54	10	28	0		N. W. l. br. fair. The entrance of Port de la Tourelle bore N. 21° E. distant about 4 leagues. d. n. 78°.
18	52	35	134	21	134	1	—	27	56	10	28	0		N. W. varying to the S. W. little wind, hazy. The nearest land bore N. 18° E. distant 5 leagues.
19	52	3	134	1	134	1	—	25	38	11	28	1		N. W. varying to the W. l. br. fair. Cape Hector bore N. 1° E. and the Kerouart Islands N. 5° E; the Cape distant 3 leag. and the island 2½. At 7 P. M. sounded in 100 fath. bottom rock.
20	51	40	133	19	133	33	—	24	8	11	28	1		W. varying to the S. S. W. fr. br. fr. C. Hector bore S. 59° W. distant about 1 leag. the furthest to the offing of the Kerouart Island S. 48° W. distant 6½ leag. d. n. 72° 50'.
21	51	1	132	48	132	50	—	24	3	11	28	0		S. varying to the S. E. fr. br. hazy. Saw land at 1 A. M. the nearest in sight bearing N. 75° E; the most westerly land N. 15° W. distant about 6 leagues. At noon foggy.
22	55	22	141	38	—	—	—	—	10	28	3			S. E. str. br. foggy. At ½ past 5 A. M. saw a range of islands; named the most westerly Cape Fleuriu, which bore N. 25° E. distant 9 leagues. At noon foggy.
23	51	47	132	5	131	43	—	24	31	11	28	3		W. N. W. l. br. foggy. The Sartine Islands bore S. 65° E. distant about 3 leagues. d. n. 66½°.
24	51	7	131	23	131	27	—	—	11	28	3			W. N. W. l. br. fr. varying to the N. W. Woody Point bore N. 33° E.
25	49	59	129	58	130	5	—	24	10	12	28	3		E. S. E. very little wind, foggy.
26	49	16	129	25	129	37	—	22	18	12	28	0		

	North Latitude.		Computed Longitude West.	
	D.	M.	D.	M.
17	43	59	129	46
18	43	37	128	45
19	48	39	127	57
20	48	39	127	58
21	47	58	127	45
22	46	39	126	20
23	45	57	125	58
24	45	55	126	17
25	44	41	126	31
26	43	0	126	34
27	41	27	—	—
28	40	48	126	23
29	39	54	126	50
30	39	2	126	29
31	38	16	126	18
32	37	02	125	45
33	36	56	124	03
34	36	42	123	53
35	36	51	123	10
36	—	—	—	—

Atmosphere; Remarks.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Dist. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Wind; State of the Atmosphere; Remarks.
At 10 A. M. from N. E. to leagues distant foggy.	157 48	59 129 46	—	—	—	12	28 0	W. S. W. calm, very thick fog N. light breeze, foggy. At 2 P. M. saw land from N. to E. N. E. distant about 6 leagues, soon after foggy. <i>d. n.</i> 68 $\frac{1}{2}$ ^o
zy. Saw land at 10 leagues distant foggy at intervals. A little wind, hazy. At 5 A. M. from N. E. to E. distant about 10 leagues. At noon foggy fair. The port of la Touche E. distant about <i>d. n.</i> 78 ^o	18 48	37 128 45	128 55	—	19 38	12 $\frac{1}{4}$ 28 0	W. N. W. fresh br. hazy. At 10 A. M. sounded in 45 and 35 fathoms, bottom grey sand. <i>d. n.</i> 68 $\frac{1}{2}$ ^o	
ing to the S. W. hazy. The bore N. 18 ^o E. leagues	19 48	39 127 57	128 4	—	19 31	12 $\frac{1}{2}$ 28 2	S. S. W. fr. br. hazy, rain. Sounded in 90 fathoms, bottom muddy; a fog	
ing to the W. Cape Hector bore S. 5 ^o E; the Cape and the island P. M. sounded bottom rocks to the S. S. W. Cape Hector bore distant about 10 leagues to the S. S. W. nearest in sight 15 ^o E; the most distant 6 $\frac{1}{2}$ leagues	30 48	39 127 58	—	—	—	12 $\frac{1}{2}$ 28 2	N. W. fr. br. very thick fog W. N. W. very little wind; fresh br. at sun-set. At noon saw land to the E. distant about 12 leagues	
erouart Island distant 6 $\frac{1}{2}$ leagues	31 47	58 127 45	127 58	—	—	12 28 1	N. very little wind, fair. Cape Redondo bore S. 48 ^o E. distant 6 leagues	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	34 46	39 126 20	126 45	126 37	18 53	11 28 1	S. S. W. almost a calm, fair. Cape Redondo bore S. 31 ^o E. distant 5 leagues	
erouart Island distant 6 $\frac{1}{2}$ leagues	34 45	55 126 17	126 16	—	—	11 28 4	N. N. E. fresh br. foggy	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	44 44	41 126 31	126 38	—	—	12 28 3	N. l. br. foggy. Saw land yesterday and to-day. <i>d. n.</i> 61 ^o	
erouart Island distant 6 $\frac{1}{2}$ leagues	54 43	0 126 34	126 48	—	15 0	12 28 2	N. N. E. fresh breeze, foggy. Land out of sight by 10 A. M.	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	64 41	27 —	—	—	15 50	11 $\frac{3}{4}$ 28 1	N. W. l. breeze, foggy	
erouart Island distant 6 $\frac{1}{2}$ leagues	74 40	48 126 23	126 60	—	15 33	10 $\frac{3}{4}$ 28 2	N. N. W. a fine br. fair. At 10 saw land, which bore E. distant about 8 leagues	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	83 39	54 126 50	127 7	—	14 24	12 28 2	N. N. W. fresh br. overcast	
erouart Island distant 6 $\frac{1}{2}$ leagues	93 38	16 126 18	—	—	—	11 $\frac{1}{2}$ 28 0	N. W. l. br. overcast. <i>d. n.</i> 57 ^o	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	103 37	02 125 45	126 13	—	—	12 28 0	N. W. fresh breeze, overcast. <i>d. n.</i> 56 $\frac{1}{2}$ ^o	
erouart Island distant 6 $\frac{1}{2}$ leagues	113 36	56 124 03	124 51	—	—	10 $\frac{1}{2}$ 28 0	N. W. fr. br. hazy. <i>d. n.</i> 57 ^o	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	123 36	42 123 53	123 47	—	—	12 28 0	N. W. fr. br. foggy	
erouart Island distant 6 $\frac{1}{2}$ leagues	133 36	— —	—	—	—	— —	N. W. l. br. hazy, foggy at intervals. The most easterly land in sight bore S. 19 ^o E. the most westerly N. 20 ^o W. distance of the nearest land about 3 leagues. <i>d. n.</i> 57 $\frac{1}{2}$ ^o	
to the S. E. fresh breeze, foggy. Land out of sight by 10 A. M.	143 36	51 123 16	123 46	124 34	12 55	12 28 0	N. W. varying to the S. W. fair. At 6 P. M. anchored in 46 fathoms, bottom muddy; the place of anchorage at the bottom of the bay of Monterey bore S. 5 ^o W. distant 2 leagues. Sailed at 11 A. M.	
erouart Island distant 6 $\frac{1}{2}$ leagues	153 —	— —	—	—	11 57	— —		

Sept. and Oct. 1786.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 19.	West Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
S. 16	—	—	—	—	—	—	—	W. fr. br. fair. At 1 o'clock P. M. anchored in 12 fathoms, bottom fine sand the landing place bore 10° W. the Presidio S. E. land distant $\frac{1}{2}$ league
17	—	—	—	—	—	—	—	W. N. W. fr. breeze, fair
18	—	—	—	—	—	—	—	Ditto
19	—	—	—	—	—	—	—	W. S. W. l. breeze, fair
20	—	—	—	—	—	—	—	W. fresh breeze, fair
21	—	—	—	—	—	—	—	W. N. W. l. breeze, fair
22	—	—	—	—	—	—	—	W. N. W. varying to the S. W. l. breeze, fair
23	—	—	—	—	—	—	—	W. N. W. fresh br. fair
								N. W. almost a calm. At 4 A. M. set sail; at a calm; anchored in 2 fathoms, bottom muddy the fort bore S. 27° distant 2 leagues. Sailed at 1 o'clock P. M.
24	36 38	123 44	123 46	124 34	11 24	—	—	W. N. W. varying to the S. At noon the fort bore 7° S. distant 5 leagues Cypress Point bore from the fort E. 7° S.
	Departure from Monterey.		By its go- ing due leaving Talcaguana	Longit. of the Point of Depart.				
25	36 43	123 50	—	—	—	—	—	W. N. W. fr. br. fair
26	36 41	124 23	123 24	—	12 59	—	—	W. N. W. fresh br. hazy
27	35 44	125 7	—	—	—	13	—	d. n. 51° 50'
28	34 12	126 39	—	—	—	13	—	N. W. fresh br. foggy
29	32 44	128 52	127 49	128 24	—	13 $\frac{1}{2}$	—	N. fr. br. fair. d. n. 50 $\frac{1}{2}$ °
30	30 58	130 55	—	—	9 19	14 $\frac{1}{2}$	—	N. N. E. fr. br. cl.
O. 1	29 24	132 34	—	—	9 46	14 $\frac{1}{2}$	—	N. fr. br. fair
2	28 39	134 0	—	—	9 30	15	—	N. E. l. br. fair
3	28 10	135 13	—	—	9 35	15	—	Ditto, hazy
4	27 54	135 49	134 50	—	8 39	15 $\frac{1}{2}$	—	W. N. W. very little wind fair. d. n. 43 $\frac{1}{2}$ °
5	27 29	136 16	135 29	—	9 14	15 $\frac{1}{2}$	—	N. W. very little wind, fair
6	27 35	137 34	136 55	—	10 20	15 $\frac{1}{2}$	—	E. N. E. l. br. fair
7	27 55	138 36	—	—	—	16	—	Ditto. d. n. 42°
8	28 03	139 57	—	—	8 27	16	—	Ditto
9	27 60	141 21	140 31	—	8 24	17	—	E. S. E. fr. br. hazy
10	27 59	143 03	—	—	9 13	17	—	Ditto
11	27 53	144 42	143 42	—	—	17	—	Ditto. d. n. 41 $\frac{1}{2}$ °
12	27 52	145 12	—	—	—	16 $\frac{1}{4}$	—	S. very little wind, hazy
13	27 51	145 32	144 54	—	8 38	16 $\frac{1}{4}$	—	S. very little wind, foggy d. n. 41°
14	27 44	146 36	146 1	147 44	—	17 $\frac{1}{2}$ 28	3	S. E. l. br. fair
15	27 52	148 14	148 4	—	9 24	17 $\frac{1}{2}$ 28	3	S. E. fr. br. hazy. d. n. 41°
16	27 55	148 14	—	—	9 28	17 $\frac{1}{2}$ 28	3	A calm, a light air from the S. S. E. hazy
17	27 49	148 46	148 8	149 26	—	18 28	3	A calm, thunder and rain
18	27 44	149 49	—	—	9 34	18 28	4	A calm, ft.
19	28 02	149 11	—	—	9 40	17 28	3	S. W. l. br. hazy

W. W. The longitude of Monterey, according to all the distances taken along the coast, and referred to this port by the time keeper No. 19, is 124 deg. 3 min. West.

Sept. and Oct. 1786.	North Latitude.	Computed Longitude West.
	D. M.	D. M.
15	27 37	149 48
16	27 44	149 48
17	27 51	151 21
18	28 4	151 42
19	27 46	153 42
20	27 27	153 56
21	27 24	154 47
22	27 0	155 17
23	26 52	158 37
24	27 9	159 11
25	26 20	159 4
26	27 27	159 2
27	25 40	160 5
28	24 30	163
29	24 4	165
30	23 29	166 3
31	23 35	167 2
1	23 33	169
2	22 52	170
3	21 31	172
4	21 11	174
5	21 7	175
6	21 13	175
7	21 8	177
8	20 47	178
9	20 31	178
10	20 13	179
11	20 6	177
12	19 54	176
13	19 28	176

Atmosphere, Remarks	North Latitude	Computed Longitude W. & L.	West Long. by the Time Keeper, No. 19.	West Long. by the Dial of the No. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
D. M. D. M. D. M. D. M. D. M. D. P. L.								
fair. At 1 o'clock anchored in 12 fathoms bottom fine sand. A place bore the Presidio S. distant $\frac{1}{2}$ league breeze, fair	10 37	37 149 48	—	—	8 57 17	28 3		{ N. E. varying by E. to S. W. very little wind, rain. d.n. 41°
fresh br. fair	11 37	44 149 48	149 42	—	—	17	28 1	{ S. S. W. very little wind, fair. Saw many birds
fresh br. fair	12 37	7 151 21	—	—	8 57 17	28 0		{ A calm, rain
fresh br. fair	13 38	4 151 42	150 51	—	—	17 1	28 2	{ S. S. W. varying by W. to N. E. very little w. rain
fresh br. fair	14 27	46 153 42	152 51	—	10 14 17	1 28 1		{ N. varying to the S. by E. strong breeze, rain
fresh br. fair	15 27	27 153 56	—	—	—	16 1 28 2		{ N. very little wind, fair. d.n. 40½°
fresh br. fair	16 27	24 154 41	153 57	155 14	10 11 17	28 2		{ N. N. W. fair, a calm. Saw a number of sea-swallows
fresh br. fair	17 27	0 155 17	—	—	—	18 1 28 2		{ S. S. E. fr. br. rain
fresh br. fair	18 26	52 158 38	—	—	9 18 19	1 28 1		{ S. S. E. fr. br. squally w. cl.
fresh br. fair	19 27	9 159 11	157 23	—	—	18 28 1		{ S. S. W. fr. rain
fresh br. fair	20 26	20 159 41	157 52	—	—	17 1 28 0		{ W. S. W. l. br. fair. d.n. 37½°
fresh br. fair	21 26	27 159 23	—	—	—	18 1 28 2		{ E. S. E. very little wind, fair
fresh br. fair	22 25	40 160 50	—	—	9 20 18	28 3		{ E. S. E. fresh br. fair
fresh br. fair	23 24	30 163 5	161 0	—	—	18 1 28 1		{ E. fr. br. fair. d.n. 36°
fresh br. fair	24 24	4 165 2	—	—	—	20 28 2		{ E. varying to the S. E. fr. br. Saw many birds
fresh br. fair	25 23	29 166 38	164 40	—	9 1 20	28 2		{ E. gusts of wind. Saw some birds. At 5 P.M. saw in the W. an island, to which the name of Necker was given. d.n. 34½°
fresh br. fair	26 23	35 167 25	165 40	—	9 37 20	28 2		{ E. N. E. fresh breeze. At noon Necker Island bore E. 8° N. distant 4 leagues. d.n. 34°
fresh br. fair	27 23	33 169 20	—	—	8 57 19	1 28 1		{ E. N. E. fr. br. fair. At half past one A.M. saw breakers very near us, bearing from N. to S. W. by the W. at noon, a small islet at the N. W. point of the breakers, bore N. distant about 2 leagues
fresh br. fair	28 22	52 170 28	—	—	—	17 28 1		{ A calm, fair. Saw many birds
fresh br. fair	29 21	31 172 32	—	—	8 38 15	28 1		{ N. squally weather, cl.
fresh br. fair	30 21	11 174 22	173 55	—	—	16 28 1		{ N. N. W. squally, cl.
fresh br. fair	31 21	7 175 33	175 59	176 47	—	17 28 1		{ N. fr. br. cl.
fresh br. fair	32 21	13 175 59	175 58	177 37	8 47 19	1 28 0		{ W. l. br. fair
fresh br. fair	33 21	8 177 53	—	—	9 30 18	1 27 11		{ W. S. W. fresh br. fair
fresh br. fair	34 20	47 178 14	176 50	—	10 6 19	28 0		{ W. fresh br. rain
fresh br. fair	35 20	31 178 32	177 13	178 44	—	19 1 28 1		{ W. N. W. l. br. hazy
fresh br. fair	36 20	13 179 27	179 6	—	12 9 19	28 2		{ W. N. W. l. br. fair
fresh br. fair	37 20	6 177 45	179 13	—	—	19 1 28 2		{ N. E. squally, cl.
fresh br. fair	38 19	54 176 51	178 35	—	12 12 20	28 2		{ N. l. br. fair
fresh br. fair	39 19	28 176 12	178 0	—	13 0 20	28 2		{ N. N. W. l. br. fair
fresh br. fair	40 19	28 176 12	178 0	—	13 0 20	28 2		{ N. W. fresh br. cl.

Nov. and Dec. 1796.	North Latitude.		Computed Longitude East.		East Long. by the Time Keeper, No. 19.		East Long. by the Diff. of the Mo. from the Sun.		Variation of the Needle East.		Ther.	Barom.	Winds; State of the Atmosphere; Remarks.	
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P. L.		
N 20	19	36	175	15	176	56	—	12	14	20	28	2	{ N. W. varying to the N. l. br. fair	
	21	19	57	174	18	176	4	—	11	27	20	28	2	S. l. br. fair
	22	20	8	173	36	175	11	—	12	14	21	28	1	W. N. W. fresh br. hazy
	23	19	30	172	42	174	11	—	11	52	19	28	1	Ditto
	24	19	41	172	3	—	—	—	12	30	20	28	1	S. S. W. fresh br. cl. heavy
	25	20	39	171	2	172	32	—	12	27	21	28	1	W. S. W. squally, str. br. cl.
	26	20	29	169	58	171	30	170 5	13	24	21	28	2	N. fresh br. cl.
	27	20	44	168	18	170	1	168 42	12	36	20	28	2	N. E. gusts of wind, cl.
	28	20	18	166	38	168	9	166 47	11	42	19	28	3	E. N. E. l. br. fair
	29	20	39	165	4	166	28	164 54	12	12	19	28	2	E. S. E. l. br. fair
	30	20	26	163	41	165	2	—	10	35	19	28	2	Ditto
D. 1	20	51	163	1	164	25	—	—	12	34	19	28	1	S. S. W. little wind, fair
	2	21	34	162	28	—	—	—	12	32	20	28	1	W. l. br. hazy
	3	20	47	162	1	—	—	—	—	19	28	1	W. N. W. str. br. squally, r	
	4	20	46	160	24	161	54	—	9	59	19	28	2	N. fresh br. hazy
	5	20	59	158	19	159	50	—	10	4	19	28	2	N. E. fr. br. fair, heavy sea
	6	20	58	156	24	158	5	—	11	18	19	28	2	E. varying to the S. E. fr. br. f
	7	21	23	155	54	—	—	—	—	18	28	1	1	S. W. very little wind, hazy
	8	21	19	154	42	155	51	—	9	14	18	28	2	N. E. fresh br. hazy
	9	20	49	152	40	153	36	—	8	24	18	28	3	E. N. E. fresh br. cl.
	10	20	57	150	49	—	—	—	8	0	19	28	3	E. fr. br. fair
	11	20	46	148	58	150	5	148 34	7	13	19	28	3	E. S. E. fresh br. fair
	12	20	28	147	05	147	05	146 33	5	49	20	28	2	Ditto
	13	20	21	145	55	146	47	—	—	20	28	2	2	S. W. very little wind, hazy
														{ N. E. str. br. squally, cl.
	14	20	15	144	33	145	16	—	—	19	28	2	2	At 1 P. M. saw Assump- tion Island S. W. by W. distant about 10 leagues
	15	19	43	144	3	144	46	—	6	14	19	28	2	N. E. fr. br. cl. At noon Assumption Island bore E. 13° N. distance two miles the Mangs Islands bore N. 30° W. dist. 6 leagues
	16	20	2	141	51	143	21	—	—	20	28	2	2	E. N. E. fresh breeze, fair
	17	19	53	140	38	142	4	—	5	33	19	28	2	E. light breeze, fair
	18	20	2	139	34	140	58	—	4	58	20	28	1	W. N. W. very little w. hazy
	19	19	49	139	2	140	28	—	5	1	20	28	1	N. W. very little wind, cl.
	20	19	39	137	53	138	55	—	4	7	18	28	2	{ N. W. l. br. fair. The swell is from the North
	21	19	36	136	16	137	37	—	3	1	17	28	2	N. N. E. fresh br. fair
	22	19	58	134	43	136	19	—	3	0	19	28	2	E. N. E. fresh br. fair
	23	20	8	133	7	—	—	—	2	11	19	28	3	N. E. fresh br. fair
	24	20	41	130	26	—	—	—	—	18	28	3	3	N. E. str. br. fair
	25	20	34	128	26	129	48	127 42	1	53	18	28	3	E. varying to N. fr. br. fair
	26	20	23	125	32	—	—	—	0	45	16	28	4	N. N. E. str. br. cl.
	27	21	13	123	25	125	4	123 21	West.	33	14	28	4	E. fresh br. hazy, rain
	28	21	8	121	32	122	48	120 57	0	41	16	28	4	E. fresh br. gusts of w. cl.
														{ E. N. E. fr. br. fair. At noon the most northerly of the Bafhee Islands bore S. 40° W. dist. about 3 leagues
	29	21	15	120	40	121	43	119 44	0	12	17	28	3	E. varying to the N. N. E. fresh br. cl. w. At sun- rise saw one of the Bafhee Islands, bearing E. 34° S.
	30	21	19	118	40	120	25	—	0	23	18	28	34	

Nov. and Dec. 1796.	North Latitude.		Computed Longitude East.	
	D.	M.	D.	M.
20	22	20	116	19
21	22	19	113	54
22	10	112	29	
At anchor pt. on coast of China.				
23	At Macao Hill Feb. 3th.		—	
24	—		—	
25	—		—	
26	—		—	
27	—		—	
28	—		—	
29	—		—	
30	—		—	
31	—		—	
1	—		—	
2	—		—	
3	—		—	
4	—		—	
5	—		—	
6	—		—	
7	—		—	
8	—		—	
9	—		—	
10	—		—	
11	—		—	
12	—		—	
13	—		—	
14	—		—	
15	—		—	
16	—		—	
17	—		—	
18	—		—	
19	—		—	
20	—		—	
21	—		—	
22	—		—	
23	—		—	
24	—		—	
25	—		—	
26	—		—	
27	—		—	
28	—		—	
29	—		—	
30	—		—	
31	—		—	
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25	—		—	
26	—		—	
27	—		—	
28	—		—	
29	—		—	
30	—		—	
31	—		—	
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17	—		—	
18	—		—	
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21	—		—	
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23	—		—	
24	—		—	
25	—		—	
26	—		—	
27	—		—	
28	—		—	
29	—		—	
30	—		—	
31	—		—	
1	—		—	
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3	—		—	
4	—		—	
5	—		—	
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7	—		—	
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14	—		—	
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17	—		—	
18	—		—	
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25	—		—	
26	—		—	
27	—		—	
28	—		—	
29	—		—	
30	—		—	
31	—		—	
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4	—		—	
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8	—		—	
9	—		—	
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11	—		—	
12	—		—	
13	—		—	
14	—		—	
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North Latitude.	Compute- Lon. True East	East Long. by the Time Keeper, No. 19.	East Lon. by the 1st. of the Mo. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D. P. L.	
22 20	116 19	—	—	—	17	28 1	N. N. E. fr. br. squally, hazy
22 19	113 54	115 55	—	0 30	14 1	28 4	N. N. E. and N. E. fr. br. cl. E. N. E. fr. br. cl. At 5 A. M. saw Piedra-Blanca, bearing N. N. E. distant 2 leagues. At noon saw a number of islands; the great Lemna bore S. 65° W. distant 5 leagues; at 7 P. M. anchored in 14 fathoms, bottom muddy, 12 leagues from Macao, which bore W. 1° S.
22 10	112 29	—	—	—	12	28 4	N. fresh br. squally. At 1 P. M. anchored in 5½ fath. bottom muddy. 1½ leag. from Macao, which bore W. 1° S.
At Macao till reb. 5th.	—	—	—	—	12 1	28 4	{ N. N. E. fresh br. At ½ past 11, N. N. E. fresh breeze, fair N. E. fresh breeze Here the date is changed to the E. of the Meridian of Paris
6	—	—	—	—	—	—	E. little wind, fair
7	—	—	—	—	—	—	E. N. E. fr. br. fair
8	—	—	—	—	—	—	E. fr. br. fair
9	—	—	—	—	—	—	N. E. fr. br. fair
10	—	—	—	—	—	—	E. N. E. fr. br. fair
11	—	—	—	—	—	—	N. E. l. br. hazy
12	—	—	—	—	—	—	N. E. squally, hazy
13	—	—	—	—	—	—	N. E. fr. br. hazy
14	—	—	—	—	—	—	N. N. E. fr. br. hazy
15	—	—	—	—	—	—	N. E. fr. br. fair
16	—	—	—	—	—	—	N. N. E. fr. br. fair
17	—	—	—	—	—	—	N. N. E. fr. br. fair
18	—	—	—	—	—	—	N. N. E. fr. br. fair
19	—	—	—	—	—	—	N. N. E. fr. br. fair
20	—	—	—	—	—	—	N. N. E. fr. br. fair
21	—	—	—	—	—	—	N. ditto
22	—	—	—	—	—	—	N. N. E. fr. br. fair
23	—	—	—	—	—	—	Ditto
24	—	—	—	—	—	—	A calm, rain
25	—	—	—	—	—	—	N. N. E. fr. br. fair
26	—	—	—	—	—	—	E. l. br. fair
27	—	—	—	—	—	—	N. N. E. fr. br. fair
28	—	—	—	—	—	—	N. E. l. br. fair
29	—	—	—	—	—	—	Ditto. fr. br. fair
30	—	—	—	—	—	—	E. N. E. fr. br. fair
31	—	—	—	—	—	—	N. N. E. l. br. hazy
1	—	—	—	—	—	—	N. l. br. hazy
2	—	—	—	—	—	—	Ditto
3	—	—	—	—	—	—	N. E. fr. br. hazy
4	—	—	—	—	—	—	N. l. br. fair
5 21 60	111 39	—	—	—	13	28 1	{ N. fr. br. Sailed from Macao at 7 A. M.; at noon the largest of the Ladrone Islands bore N. 31° W.

Feb. 1, 9.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Diff. of the No. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks
	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	P. I.	
F. 6	21 59	112 26	—	—	0 32	11 1/2	28	1 N. fr. br. fair
7	22 6	112 39	—	—	—	13 1/2	28	1 N. E. fr. br. fair
8	21 36	112 50	—	—	—	16	28	2 N. E. fr. br. hazy
9	20 55	113 27	—	—	0 15	17	28	2 E. N. E. fr. br. fair
10	19 57	114 45	—	—	—	18	28	2 N. N. E. squally, cl.
11	18 52	115 41	—	—	0 50	18 1/2	28	2 N. E. fr. br. fair
12	18 31	115 57	—	—	—	20 1/2	28	2 Ditto
13	18 15	116 27	—	—	—	21	28	1 E. N. E. fr. br. fair
14	18 11	117 20	—	—	—	21 1/2	28	1 E. S. E. little wind, fair
15	18 15	117 24	—	—	0 36	22	28	1 S. S. E. very little wind, fair
16	17 54	118 0	—	—	0 22	22	28	0 W. S. W. very little wind, fair. At noon the island of Bantam bore E. 37° distant 6 leagues
17	17 40	117 52	—	—	—	21	28	0 S. W. l. br. fair. At noon the isle of Bantam bore E. 19° S. distant 5 leagues
18	18 1	117 41	118 16	—	—	28	28	1 W. S. W. very little w. fair. Bantam Isle bore E. 35°
19	17 40	117 54	118 1	—	—	21	28	1 N. fr. br. fair. At noon the Isle Bantam bore S. 57°
20	15 44	117 28	—	—	—	21 1/2	28	2 E. fr. br. fair. At noon Point Capones bore N. 75° E.
21	14 30	117 25	—	—	—	22 1/2	28	2 E. l. br. fair. Point Capones bore N. 75° E.
22	14 30	117 52	—	—	—	21 1/2	28	1 N. E. fresh br. fair. Point Mirabella bore S. 82° E. the middle of that island S. 88° E.
23	14 23	118 13	—	—	—	22	28	2 E. l. br. fair. The Puerco or Hogs, bore N. 52° E. and the Moha, N. 87° E. At 1/2 past 5 P. M. anchored in the Port of Mirabella. Wind the same till the 24th at noon
24	At anchor in the port of Mirab.	—	—	—	—	—	—	E. N. E. fr. br.
25	—	—	—	—	—	21 1/2	28	1 N. E. fresh br. fair. Sailed at 8 A. M. At 6 P. M. anchored in the Bay of Manilla
26	At anchor in the bay of Manilla.	—	—	—	—	23	28	1 E. N. E. l. br. Stood off anchor for Cavita. The Moha bore S. 50° E. Sailed at 5 A. M. At noon, Cavita bore E. 8° N. At 7 P. M. anchored a league from Cavita, to the N. 65° W. 11 fath. bottom muddy
27	At anchor in the port of Cavita.	—	118 18	At the observatory Cavita.	—	—	—	N. N. E. varying to the E. N. E. fresh br. fair. At 5 A. M. set sail, and at anchored in the port of Cavita, two cables length from land. Here we remained till April 11

Feb. 1, 9.	North Latitude.	Computed Longitude East.
	D. M.	D. M.
F. 6	—	—
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Ob- serv- ed Wind, Dir., Force, &c.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Diff. of the Men- from the Sun.	Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
air	1.30	—	—	—	—	—	—	E. N. E. fr. br. fair. The
ry		—	—	—	—	—	—	fort of Cavita bore N. by
fair		—	—	—	—	—	—	E. we anchored in 3 1/2 fa-
ly, cl.		—	—	—	—	—	—	thoms, high water
air		—	—	—	—	—	—	A calm, fair
		—	—	—	—	—	—	N. fresh breeze, fair
		—	—	—	—	—	—	N. N. E. ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	E. N. E. ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	24	28 1	Ditto
		—	—	—	—	24	28 1	E. N. E. ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	E. N. E. fr. br. fair. Shifted
		—	—	—	—	—	—	anchor this day, and an-
		—	—	—	—	—	—	chored in 4 fathoms, bot-
		—	—	—	—	—	—	tom muddy. The fort of
		—	—	—	—	—	—	Cavita bore N. 16° E.
		—	—	—	—	—	—	E. N. E. fresh breeze, fair
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	N. ditto
		—	—	—	—	—	—	N. N. E. ditto
		—	—	—	—	—	—	E. N. N. varying to N. ditto
		—	—	—	—	—	—	E. light breeze, fair
		—	—	—	—	—	—	E. N. E. fresh breeze, fair
		—	—	—	—	—	—	N. N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	E. N. E. ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	N. ditto
		—	—	—	—	0 33	—	N. N. W. ditto. d. n. 11° 5'
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	E. N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	E. N. E. ditto
		—	—	—	—	—	—	N. E. ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	Ditto
		—	—	—	—	—	—	N. E. fr. br. Warped the ship
		—	—	—	—	—	—	to about 3 cables length to
		—	—	—	—	—	—	the N. E. by E. The fort
		—	—	—	—	—	—	of Cavita bore N. 60° E.
		—	—	—	—	—	—	N. E. fr. br. Warped the ship
		—	—	—	—	—	—	to the stream N. 3 cables
		—	—	—	—	—	—	length; (grelins). Fort
		—	—	—	—	—	—	Cavita then bore N. 88° E.
		—	—	—	—	—	—	N. E. fresh br. faic. Pre-
		—	—	—	—	—	—	pared for sailing

April and May, 1787.	North Latitude.		Computed Longitude East.	East Long. by the Time Keeper, No. 19.		East Long. by the Dir. of the Mo. from the Sun.		Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.	
	D.	M.	D.	M.	D.	M.	D.	P.	L.			
A 11	14	34	—	117	58	—	—	—	21	28	2	N. N. E. fr. br. fair. Set sail at noon, Fort Cavita bore N. 90° E. distant 1 mile
12	15	42	117	36	—	—	—	—	20	28	2	W. N. W. very little wind, fair. The N. point of the Island of Two Sisters bore N. 46° E. distant a league
13	16	23	117	2	117	20	—	—	21	28	3	N. l. br. fair. Point Bol-mao bore E. 27° N.
14	16	47	117	9	117	42	—	—	21	28	1	E. S. E. a calm. The most northerly land in sight bore S. 63° E.
15	17	1	117	7	117	41	—	—	20	28	1	A calm, fair
16	17	28	117	9	118	0	—	East.	21	28	2	N. l. br. At noon a calm
17	18	9	116	59	117	44	—	—	21	28	2	N. N. W. light br. fair
18	19	28	117	0	117	38	—	—	21	28	1	E. N. E. fr. br. fair
19	20	59	117	39	117	39	—	—	21	28	1	E. l. br. fair
20	21	24	117	47	117	20	—	—	18	28	1	N. N. E. very little wind, fair
21	21	38	117	17	—	—	—	—	17	28	3	E. l. br. fair
22	22	2	117	13	117	14	—	—	16	28	3	N. N. E. ditto
23	22	2	117	38	—	—	—	—	16	28	3	N. ditto
24	22	24	118	7	118	1	117	58	16	28	3	N. N. W. very little w. fair
25	22	47	117	16	117	7	—	—	16	28	3	N. N. E. fr. br. fair
26	22	56	116	45	116	39	—	—	16	28	5	N. N. E. fr. br. fair. For several days before, had failed over a bank, where we founded from 22 to 12 fath. bott. sand and rock
27	22	32	117	42	117	59	118	16	18	28	5	N. N. W. very little wind, fair. Port Zealand bore E. 30° S. distant 3 leagues. At 4 P. M. anchored in 17 fathoms, bottom muddy
28	22	52	117	49	117	42	—	—	18	28	5	N. N. W. very little wind. Sailed at 4 A. M. Port Zealand bore S. 35° E. distant 4 leagues. At noon a calm. At 7 P. M. anchored in 37 fathoms, bottom muddy. Set sail, the wind at N. N. E.
29	23	24	—	117	45	—	—	—	—	—	—	N. N. E. str. breeze, squally w. cl.
30	22	9	—	117	55	—	—	—	—	—	—	N. E. l. breeze, fair. At 6 P. M. the most southerly of the Pescador Islands bore N. 64° W. distant about 2 leagues
M. 1	31	45	—	118	19	—	—	—	—	—	—	E. S. E. l. br. fair. Lamay Island bore N. 38° E. distant 6 leagues
2	31	44	—	119	22	—	—	—	—	—	—	S. E. varying to the N. by the E. l. br. ft. and r. At noon, the Island of Botol, or Tabaco-xima, bore N. 7° W. distant 5 leagues

Lat. N.	North Latitude.	Computed Longitude East.	
	D.	M.	D. M.
M	31	57	Lat. & Lon. of the cap. point of the great Ill. Botol or Tabaco-xima.
		21	45 119 3
		22	14 120 1
		22	40 120 2
L	24	28	Lat. & Lon. of the N. point of the Ile Kumi.
		24	30 120 3
		25	44 Lat. & Lon. of south island.
		25	55 Lat. & Lon. of North island.
10	26	3	121 2
		27	7 121 6
		27	43 120 30
		28	19 120 5
11	28	36	121 9
		28	41 121 10
13	29	27	121 10
		29	46 121 11
15	30	1	121 5
		29	121 4

Obs.	North Latitude.	Computed Longitude Sail.	East Long. by the Time Keeper, Nov. 19.	East Long. by the alt. of the sun from the Sun.	Variation of the Needle East.	Ther.	Barom.	Wind; State of the Atmosphere; Remarks.
D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
21	57	119 33	119 29	—	—	20	28 3	N.E. l. br. fair. The Island Botol bore N. 30° W. distant 3 leagues. At 6 P.M. it bore N. 47° W. distant 1 league.
22	45	119 33	119 29	—	—	20	28 1	N.E. varying to the E. fr. br. fr.
23	40	120 29	120 37	—	—	19	28 2	E. S. E. very little wind, fair
24	28	120 31	120 49	—	—	19 1/2	28 1	S. E. little wind, fair. At noon the N. E. point of the Isle of Kumi bore E. 14° S. and the S. E. point bore S. 23° E. dist. two miles
25	44	121 14	121 14	—	—	19 1/2	28 1	S. E. fr. br. fair. At 8 A.M. the Island Hoapinsu, or South Island, was in the same bearing as North Island, N. 48° E. Our distance from the former was 2 miles, and from the latter 6 leagues. At noon, the Island Hoapinsu bore S. 20° W. dist. 3 leag. and the North Island bore S. 22° E. distant 4 leagues
26	3	121 21	121 21	—	—	19 1/2	27 11	S. S. W. fresh br. fair
27	7	121 6	121 18	—	—	19 1/2	27 11	S. S. W. vary. to N.N.E. fr. br.
28	19	120 55	—	—	—	19 1/2	27 11	S. S. W. l. br. foggy. Sounded in 55 and 50 fathoms, bottom sandy
29	36	121 9	—	—	—	15	28 0	S. S. W. varying to the W. N.W. l. br. fr. very foggy w. Sounded in 55 and 45 fathoms, bottom muddy
30	41	121 10	—	—	—	14	28 0	S. S. E. very little wind, foggy. At 1/2 past 6 P.M. anchored in 45 fathoms, bottom muddy
31	27	121 16	—	—	—	15	27 11	W. S. W. l. breeze, foggy, Sounded in 45 and 50 fathoms, bottom muddy. At 7 P.M. anchored in 43 fathoms. bottom muddy
32	46	121 5	121 59	—	—	14	28 0	S. S. W. very little wind, still foggy. At 8 P.M. set sail. At 10 P.M. anchored in 39 fathoms, bottom muddy, very thick fog
33	1	121 56	—	—	—	13 1/2	28 0	S. S. W. l. br. At 10 A.M. set sail, wind at E. N. E. l. br. fair
34	29	121 47	—	—	—	13 1/2	28 0	E.N.E. l. br. hazy. Sounded in 45 to 24 fathoms, bottom muddy

May, 1797.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Dist. of the No. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	L. P.	
M 12	30 47	131 46	—	—	—	12	28 0	E.N.E. very little w. foggy Sounded in 36 and 40 fathoms E. very little wind. Sounded in 36 and 25 fathoms, bot- tom sandy. At 1/2 past 3 A. M. anchored in 25 fathoms At 10 set sail; at noon the wind at E. very dead, hazy At 1/2 past 8 P.M. anchored in 32 fathoms, bottom sandy
18	31 15	124 53	121 43	—	—	12 1/2	28 0	E. very little wind. Set sail at 6 A.M. wind at E. fr. br. cl. hazy. At 1/2 past 6 P.M. anchored in 25 fathoms, bot- tom sandy. At 6 set sail l. airs at N. the current miles per hour
19	31 47	122 2	122 0	—	—	12 1/2	28 0	N. very little wind, foggy N.N.W. fr. br. cl. Sounded in 36 and 40 fathoms
20	32 1	121 70	—	—	—	11 1/2	27 11	W.S.W. l. br. At noon the W. point of Quelpaert Is. bore N. 16° W. distant leagues. d.n. 45° 5'
21	32 34	123 45	123 50	—	—	10 1/2	27 11	S.W. little wind, fair. The southernmost islands in sight bore N. 14°; the W. mo- N. 9° W. dist. 5 leagues
22	32 59	124 16	124 21	124 6	—	11 1/2	28 0	N. l. br. fair; a calm sea The southernmost coast of Corea in view, bore W. 35° N. the northernmost N. 27° E. dist. 3 leagues
23	33 40	125 23	125 27	—	—	13 1/2	28 1	E. N. E. little wind, fair The northernmost coast of Corea in view, bore N. 20° E. Ran along this coast at 2 leagues distance
24	34 23	126 7	126 27	—	—	13	27 10	S. W. fresh br. fair. The northernmost point of Co- rea bore N. 20° W. dist. 2 leagues. Sounded in 7 fathoms. d.n. 44°
25	34 31	126 46	126 48	—	1	45	12 27 11	N.N.E. l. br. ft. a fog pre- vented us from seeing land N.W. l. br. hazy. The no- thernmost land of Corea in sight bore N. 32° W. dis- tant 8 leagues. Steered the E. to explore the island of Japan. At 3 P.M. found an island bearing N. 15° E. dist. 15 leag. At noon the middle of this island, called Ile Dagelet, bore N. 17° E. distant 4 leagues. d.n. 45°
26	35 29	127 35	127 35	127 12	—	12 1/2	27 14	
27	36 23	127 7	—	—	—	12	27 9	
28	36 41	128 17	128 11	—	1	54	11 27 11	

State of the Atmosphere; Remarks

.E. very little w. foggy
ended in 36 and 40 fathoms
very little wind. Sounded
36 and 25 fathoms, bottom
sandy. At 1/2 past 2 A.M.
anchored in 25 fathoms
10 fet sail; at noon the
wind at E. very dead, hazy
1/2 past 8 P.M. anchored
32 fath. bottom sandy
very little wind. Set fair
8 A.M. wind at E. fr. br.
ry. At 1/2 past 6 P.M.
anchored in 25 fath. bottom
sandy. At 6 fet sail
airs at N. the current
les per hour
ry little wind, foggy
W. fr. br. cl. Sounded
36 and 40 fathoms
S.W. l. br. At noon the
point of Quelapaert Island
N. 16° W. distant
gues. d.n. 45° 5'
W. little wind, fair. The
northernmost islands in sight
are N. 14°; the W. most
9° W. dist. 5 leagues
l. br. fair; a calm sea
the southernmost coast of
Corea in view, bore W.
10° N. the northernmost
27° E. dist. 3 leagues
N. E. little wind, fair
the northernmost coast of
Corea in view, bore N.
10° E. Ran along this coast
2 leagues distance
W. fresh br. fair. The
northernmost point of Corea
bore N. 20° W. distant
leagues. Sounded in 7
fathoms. d.n. 44°
N. E. l. br. ft. a fog pre-
vented us from seeing land
W. l. br. hazy. The north-
ernmost land of Corea
bore N. 32° W. distant
8 leagues. Steered
E. to explore the island
Japan. At 3 P.M. saw
island bearing N. 15°
15 leag. At noon the
middle of this island, called
Dagelet, bore N. 17°
distant 4 leagues. d.n. 43°

North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 18.	East Long. by the Diff. of the Mer. from the Sun.	Variation of the Needle E. or W.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D. P. L.	
37 9	128 41	128 59	—	2 11	11	28 0	S. fr. br. fair
37 25	129 2	129 2	Long. of S. point of Dagelet Isl.	—	—	—	S. S. E. fr. br. fair. At 6 A. M. lost sight of Dagelet Island
38 12	129 47	129 45	—	1 44	12	28 1	S. S. E. fresh br. fair
38 22	130 34	130 41	—	—	11	28 1	S. S. E. l. br. fair
38 12	131 27	131 35	—	—	12	28 1	S. S. E. l. br. fair
37 38	132 10	132 13	—	0 36	13	28 0	S. varying to N. E. l. br. fair
37 17	132 34	132 32	—	0 20	12	28 1	N. E. varying to the S. E. l. br. foggy
37 13	133 17	—	—	—	13	27 11	S. little wind, foggy
38 7	133 32	133 38	—	—	12	28 0	S. l. br. foggy. d.n. 47°
37 40	133 33	134 49	Long. of the point of Jootsi-sima.	—	13	28 0	S. W. fr. br. hazy. At 10 saw Japan; at noon the N. most point bore E. 9° S. Ran along the coast of Japan, and passed to the E. of the Island Jootsi-sima, which bore at 4 P. M. E. and W. The point of the same name bore S. 66° E.
37 51	—	135 20	Long. of the point of Jootsi-sima.	—	—	—	
37 36	Latitude of an island E. of that point.	135 14	Long. of that point.	—	—	—	
37 18	Latitude of the S. most point in view of Japan.	135 5	Long. of the S. most point in view of Japan.	—	—	—	
38 28	134 40	134 55	—	—	11	28 1	S. E. l. br. hazy
39 20	133 31	133 39	—	0 7	13	28 1	S. S. W. fresh br. foggy
40 4	132 4	—	—	West. 0 35	10	27 7	S. S. W. fr. br. in squalls, foggy, with much rain
40 49	131 55	131 40	130 54	0 3	10	27 7	S. W. little wind, foggy. At 10 A. M. saw the north coast of Corea, in the N. At noon, were dist. from it 12 leagues. d.n. 47° 3'
41 55	131 48	131 45	131 6	East. 1 6	9	27 7	S. S. W. varying to the W. fr. br. d.n. 48° 5'
42 35	132 15	132 23	—	0 19	7	27 8	N. E. l. br. foggy. At noon the N. most land in sight bore N. 29° E. and the W. most, N. 65° W. distant 5 leagues
42 49	132 43	132 41	—	2 33	8	28 0	S. W. little wind, fair. The land which at noon bore N. was dist. 2 leag. Sounded at that dist. in 120 fath. bottom muddy. d.n. 53°
43 31	133 45	133 56	—	—	8	28 1	S. S. W. light breeze, fair. Ran along the coast of Tartary, at the distance of 2 or 3 leagues
43 53	134 21	—	—	—	9	28 0	S. S. E. light breeze, foggy. Always in sight of land. d.n. 55°
43 57	134 33	134 28	—	—	8	27 11	S. S. W. little wind, foggy
44 12	134 32	—	—	—	7	27 10	E. very little wind, foggy at intervals. d.n. 55°
44 10	134 47	—	—	—	8	27 9	S. S. W. l. br. very thick fog
44 30	134 52	135 13	—	—	8	27 10	S. S. W. fresh br. foggy

June and July, 1787.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Dist. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 20	44 44	134 59	135 21	135 5	—	7 $\frac{1}{2}$	27 9	N. E. little wind, fr. Table Mount bore N. 8° W. the nearest land dist. 4 leag.
21	44 46	135 35	—	—	—	8	27 10	S. S. W. very little wd. foggy at intervals. At noon the N. most land in sight bore N. 20° E. and the nearest land bore N. 29° W.
22	45 1	135 48	135 42	—	—	8	27 10	N. E. fresh breeze, fair, very thick fog
23	45 10	135 37	135 19	—	—	6	27 10	A calm, fair. The nearest land bore W. 20° N. distant 3 leagues
24	45 13	—	135 9	—	—	—	—	N. E. fresh breeze, fair. At anchor in the bay of Ternai
25	—	—	—	—	—	8	28 0	A calm, rain in the course of the day
26	—	—	—	—	—	8	28 0	N. E. l. br. fair
27	45 13	135 15	135 15	135 15	1 42	6	28 1	W. N. W. l. br. hazy. Set sail at 8 A. M. the bay of Ternai bore N. 20° E. distant 3 leagues
28	46 8	136 28	136 24	—	1 10	7 $\frac{1}{2}$	28 1	S. fr. br. fair. The nearest land bore N. 45° W. distant 2 leagues. d. n. 58°
29	46 51	136 54	137 34	—	—	8 $\frac{1}{2}$	27 11	N. N. E. overcast, l. br.
30	47 20	137 33	137 37	—	—	8	28 0	W. S. W. l. br. foggy at intervals. The nearest land bore N. 55° W. distant 3 leagues. At 7 P. M. anchored in 36 fathoms, bottom muddy, 2 leag. from land; foggy
Jy. 1	47 50	137 34	137 22	—	—	9	28 0	S. light breeze
2	47 52	137 22	—	—	—	—	28 0	At 10 P. M. set sail to approach the shore; wind at S. foggy. At noon anchored in 25 fathoms, bottom sand and pebbles, 1 mile from land
3	47 51	137 25	—	—	—	8	28 0	N. E. l. br. At 8 A. M. the Bilcay yawl was sent ashore, but could not land on account of the fog
4	47 51	137 25	—	—	—	—	27 11	Set sail at 8 A. M. At noon a calm, foggy. At 6 P. M. anchored in 44 fathoms, bottom fine sand
5	47 43	137 28	137 48	—	—	9	27 10	d. n. 60° 5'
6	48 0	138 20	139 19	—	2 54	10	27 7	Set sail at noon, and ran along the coast of Tartary; the wind at N. N. E. light breeze, foggy

July, 1787.	North Latitude.	Longitude.
	D. M.	D. M.
J. 24	48 31	13
8	48 23	13
9	48 15	13
10	48 22	13
11	48 4	14
12	47 53	14
13	47 49	14
14	48 13	14
15	48 27	15
16	48 22	15
17	48 20	15
18	48 12	15
19	48 59	

Atmosphere; Remarks.

Miles, 100.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Diff. of the Mo. from the sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.		
7	48 31	139 19	139 11	—	2 57 2 33	9 1/2	27 8	S. fr. br. At 8 A.M. saw a very high peak, and a low point, bearing N. 80° E. distant 10 leagues. The N.-most point in sight of the continent of Tartary bore N. distant 9 leagues; fair w. At noon Lamanon Peak bore N. 66° E. dist. 12 leag. the nearest land of Tartary in sight bore N. 45° W. <i>d. n.</i> 63°	
8	48 23	139 32	139 41	—	—	10	27 7	A calm, hazy w. At noon the N. point of the island of Segalien in sight, bore N. 35° E. Lamanon Peak bore N. 44° E. and the S.-most land E. <i>d. n.</i> 63° 5'	
9	48 15	139 38	139 54	—	—	9 1/2	27 8	S. S. W. l. br. very thick fog. Sounded in 62 fathoms, bottom muddy	
10	48 22	139 53	139 57	—	0 46	10 1/2	27 11	S. little wind, foggy	
11	48 4	140 10	140 16	139 20	1 0	10 1/2	27 11	S. S. W. fresh br. fair. At noon the entrance of a bay bore S. 33° E. distant 6 leagues; and the nearest point of land S. 83° E. dist. 4 leagues. <i>d. n.</i> 65° 3'	
12	47 53	140 10	140 25	—	0 47	11	27 11	S. fresh br. fair. Lamanon Peak bore N. 1° E. the entrance of a bay N. 73° E. distant 3 leagues, and the nearest land S. 45° E. distant 2 leagues	
13	47 49	Latitude of the anch. place.		140 29	Long. of the anch. place.		0 47	13 27 10	S. fr. br. fair. At 6 P. M. anch. in Baie de Langle, in the Island of Segalien, in 14 fath. the village bore E. 24° S. 1/4 of a league
14	48 13	140 0	—	—	—	13 3/4	27 10	S. S. W. fr. br. At 5 A.M. sailed from Baie de Langle. <i>d. n.</i> 63° 5'	
15	48 27	139 29	—	—	—	11	27 10	S. fresh breeze, foggy	
16	48 22	139 9	—	—	—	12	27 11	S. S. W. ditto	
17	48 20	138 47	—	—	—	10	27 10	S. ditto	
18	48 12	138 42	—	—	—	11 1/2	27 10	S. S. E. l. br. foggy	
19	48 59	—	140 32	—	—	13	27 10	S. S. E. fresh br. overcast. Lamanon Peak bore N. 65° E. distant 4 leagues, and the nearest point of land N. 80° E. distant 2 leagues. At 2 P. M. anchored in Baied' Estaing, in 20 fath. bottom muddy, 1/2 of a league from land	

July, 1787.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Dir. of the No. from the Sun.	Variation of the Needle East.	Ther.	Sarem.	Wind; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
J. 20	49 26	140 32	140 32	140 16	—	14	27 10	S. l. br. At 4 A. M. set fail, the wind S. fresh br. hazy. At 7 P. M. anchored in 39 fathoms, bottom fine sand, 1 league from land. <i>d n. 64° 4'</i>
21	49 53	140 31	—	—	—	13	27 10	S. l. br. hazy. At 4 A. M. set fail; at noon the nearest land bore N. 11° E. distant 2 leagues
22	50 31	140 26	140 30	—	—	14	27 10	S. l. br. hazy w. Sounded from 80 to 45 fath. rang- ing along Segalien Island. At noon the nearest land bore E. 11° N. distant 2 leagues. At ½ past 2 an- chored 42 fath. bot. mud- dy, 1½ league from land.
23	50 52	140 31	140 38	139 59	—	14 ½	27 11	S. almost a calm, foggy. At 5 A. M. set fail; a l. br. from the S. fair. Our an- choring place, called <i>Ruis- seau des Saumons</i> , bore S. 10° E. and the nearest land E. 22° S. 1½ leag. Sounded in 39, 38, 35, 30, and 29 fathoms, bottom sandy, till 4 P. M. At 9, 24 fa- thoms. At ½ past 9, an- chored in 22 fathoms, bot- tom sandy
24	51 29	140 26	140 29	—	0 55	14	28	S. l. br. At 3 A. M. set fail; at noon, the nearest land bore E. 20° N. distant 4 leagues and the S. most land bore N. 6° E. Sounded in 15, 16, 18, 20, and 22 fathoms, as we drew near the middle of the channel of Tartary. At ½ past 7 P. M. anchored in 24 fathoms, bottom mud- dy. <i>d n. 71°</i>
25	51 29	139 46	139 47	—	—	13	28	S. l. br. hazy. At 4 A. M. set fail; foggy, l. breeze; courlé westerly. Sounded in 22, 20, and 12 fathoms, till ½ past 9, when we came to anchor. At 2 o'clock set fail, and stood to the N. E. running along the shore. At ½ past 7 sounded in 19 fathoms, bottom sandy; anchored same hour, 3 leagues from land

North Latitude.	Computed Longitude East.
D. M.	D. M.
51 40	140
51 44	140
51 32	140
51 29	139 5
51 29	139 4
30	—
31	—
2	—
3 51	19 140
4 50	48 139
5 50	35 139
6 50	18 139
7 50	6 140
8 49	13 139
9 48	25 140

Hour and Minute.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
At 4 A.M. fet nd S. fresh br. P.M. anchored ms, bottom fine gue from land.	D. M.	D. M.	D. M.	D. M.	D. M.	D.	L. P.	
At 4 A.M. oon the nearest N. 11° E. dif- ies	51 40	140 3	—	—	—	13	28 0	S.S.W. Sailed at 10 A.M. and stood off and on to get to the southward into deeper water
y w. Sounded 45 fath. rang- egalian Island, e nearest land ° N. distant 2 At ½ past 2 an- ath. bot. mud- ue from land.	51 44	140 2	—	—	—	12	28 0	S. S. W. fr. breeze, rather foggy. Sounded from 8 to 9, 12, 14, 15, 18, and 21 fathoms, bottom muddy. Sounded P.M. in 18, 16, 15, 14, 13, and 12 fath. At ½ past 7 P.M. anch. in Baie de Castries, in 11 fathoms, bottom muddy
alm, foggy. At et fail; a l. br. fair. Our an- ce, called <i>Ruf-</i> <i>umons</i> , bore S. the nearest land ½ leag. Sound- 8, 35, 30, and bottom sandy, . At 9, 24 fa- t ½ past 9, an- 2 fathoms, bot-	51 29	139 51	—	—	—	12	28 0	S. S. W. fresh breeze, fair. Shifted anchor, and anchored in 5½ fathoms, bottom muddy
A.M. fet fail; e nearest land ° N. distant 4 d the S.-moft 1.6° E. Sound- 6, 18, 20, and as we drew iddle of the Tartary. At ½ M. anchored in bottom mud- 10	51 29	139 41	—	—	—	12	27 11	S. very little wind, foggy
At 4 A.M. gy, l. breeze; erly. Sounded nd 12 fathoms, when we came At 2 o'clock stood to the N. along the shore. ounded in 19 ottom sandy; ame hour, a n land	50 —	—	—	—	—	13	27 10	E. S. E. very little wind
	50 —	—	—	—	—	13	27 11	S. S. E. l. br. fair
	50 —	—	—	—	—	13	27 11	S. very little wind, fair
	50 —	—	—	—	—	13	27 11	E. N. E. very little wind, varying to the S. E. At 4 P.M. fet fail. At 8 P.M. Cape Clostercam bore S. 18° W. Sounded in 12 and 14 fathoms
	50 —	—	—	—	—	13	27 11	S.S.W. varying to the S.S. E. very little wind. At noon, the nearest land bore N. 35° E.
	50 —	—	—	—	—	13	27 11	S. S. W. varying to the S. S. E. very little wind, fair. Soundings increased as we steered southerly, to 45 fathoms. At noon the land bore W. 11° N. distant 3 leagues.
	50 —	—	—	—	—	13	27 11	S. fr. br. foggy w.
	50 —	—	—	—	—	13	27 7	S. fr. br. hazy
	50 —	—	—	—	—	13	27 6	S. S. W. fresh breeze, heavy sea, hazy
	50 —	—	—	—	—	13	27 6	S. S. W. fresh breeze, varying to the N. round by W. and E. N. E. very little wind, fair. Saw the coast of Tartary, bearing S. 55° W. and N. 38° E. Lamanon Peak bore S. 48° E.
	50 —	—	—	—	—	13	27 10	N. fr. br. fair. Lamanon Peak bore N. 48° E. the S.-moft point in sight bore S. 66° E.
	50 —	—	—	—	—	13	27 9	

August, 1787.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Dist. of the Mo. from the Sun.	Variation of the Needle West.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
A 10	46	45	140 24	140 11	138 37	1	27	13 $\frac{1}{2}$ 27 10
								N. str. br. fair, a large sea. The middle of Monneron Id. bore S. 29° W. and the Peak of Bernizet N. 32° E. At half past 7. P. M. anchored in 40 fathoms, bottom sandy, 2 leagues from the coast; Langle Peak bore S. 20° W. Monneron Island N. 55° W. and Cap Crillon E. 18° S.
								N. str. br. fair. At 4 A. M. set sail, with a fair, at noon At $\frac{1}{2}$ past 11, a calm. Anchored 2 leag. from Point Crillon bearing N. 72° W. Langle Peak bore S. 30° W. At $\frac{1}{2}$ past 12 at noon shifted anchor, when Cap Crillon bore S. 13° E. and Langle Peak S. 29° W.
11	45	57	140 32	140 25	—	1	23	15 27 11
								A calm, fair. At 8 A. M. sailed and passed the strait which separates Jesso from Oku-Jesso; wind at N. E. l. br. hazy
13	45	21	140 3	141 13	—	1	37	10 $\frac{1}{4}$ 28 0
								S. almost a calm, fair. Cap Aniva bore N. 30° E. and Langle Peak S. 81° W.
14	47	27	141 43	—	—	2	11	11 $\frac{1}{2}$ 28 0
								S. E. l. br. fair. At noon Cape Aniva bore N. 9° E. d. n. 57°
15	46	9	142 44	142 57	—	3	0	12 $\frac{1}{2}$ 28 1
								E. S. E. l. br. fair. Cap Aniva bore S. 84° W.
16	46	20	143 48	—	—	—	12	$\frac{1}{2}$ 28 1
								E. S. E. fr. br. hazy, foggy d. n. 54°
17	46	9	144 18	144 11	—	—	12	$\frac{1}{2}$ 27 11
								E. S. E. varying to the N. E. hazy
18	45	57	144 52	144 58	—	—	12	27 11
								N. varying to S. S. E. round by E. little wind, foggy at intervals. d. n. 53°
19	46	19	146 7	146 21	—	3	32	13 27 9
								S. fr. br. hazy. Saw Staten Island, which bore S. 1° E.
20	46	27	148 6	148 9	—	5	14	13 27 10
								S. W. fr. br. cl. Ran along Staten Island
21	47	10	148 50	148 56	—	—	10	$\frac{3}{4}$ 27 11
								S. E. little wind, foggy. d. n. 57°
22	47	14	148 47	—	—	5	4	12 28 0
								S. l. br. varying to the W. S. W. foggy
23	47	12	148 49	148 9	—	—	13	28 1
								S. S. W. varying to the S. little wind, very thick fog
24	47	22	149 24	149 15	—	5	27	10 $\frac{1}{2}$ 27 11
								S. light breeze, foggy. One of the Four Brothers' Islands, bore S. 2° W. d. n. 52° 5'

North Latitude.	Computed Longitude East.
D. M.	D. M.
15 47	28 149 47
16 47	20 149 48
17 47	11 150 3
18 47	7 149 44
19 46	19 149 59
20 45	57 150 48
21 46	15 152 18
22 47	3 153 58
23 48	29 155 38
24 49	16 156 24
25 50	23 156 25
26 50	56 157 17
27 52	26 157 56
28 53	1 —

Anchored at Awafcha from Sept. 8, to 10th.

Depth of water.	North Latitude.	Computed Longitude East.	East Long. by the Time Keeper, No. 19.	East Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle East.	Ther.	Barom.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	
15	47	28 149 47	—	—	—	10	27 11	S. S. E. l. br. foggy
16	47	20 149 48	—	—	—	11	27 10	{ S.S.E. varying to the N. and at noon to the W. very little wind, foggy
17	47	11 150 3	150 3	—	—	9 1/2	27 11	{ W. S. W. l. br. At half past 3 the fog cleared up; saw the Island Mareckan, bearing from N. 67° E. to S. 6° E.
18	47	7 149 44	149 44	—	4 44 4 49	9 1/2	28 0	{ S. W. varying to N. round by W. and N. N. E. At noon almost a calm, overcast: the N. E. point of Mareckan bore N. 73° E. the S.W. point bore S. 37° E. and one of the Four Brothers, S. 37° W.
19	46	19 149 59	—	—	—	7	28 1	{ E. varying to the N. E. l. breeze, overcast. Proceeding through the strait of La Bouffole, at 4 A. M. the S. point of Mareckan, bore N. 30° E. distant five leagues; foggy
20	45	57 150 48	151 10	—	—	8	28 1	W. S. W. l. br. overcast
21	46	15 152 18	—	—	—	10 1/2	28 1	Ditto, very little wind, foggy
22	47	3 153 58	—	—	—	12	28 1	S. S. W. str. br. foggy
23	48	29 155 38	155 32	—	—	9 1/2	27 11	W. ditto
24	49	16 156 24	156 23	—	6 3	9	28 2	{ W. N. W. very little wind, foggy
25	50	23 156 25	156 52	156 23	6 4	10	28 2	{ S. W. str. br. cloudy
26	50	56 157 17	157 40	157 15	6 53	9 1/2	27 11	{ S. W. fr. br. foggy. At 3 P. M. saw the land of Kamtschatka
27	52	26 157 56	157 36	157 14	—	8 1/2	27 9	{ W. fresh breeze, cloudy. At noon the volcano bore N. 38° W.
28	52	47 156 54	156 57	156 42	—	7 1/2	27 10	{ N. W. l. br. fair. The entrance of the Bay of Awatfcha bore N. 50° W. and the volcano N. 5° W. At 7 P. M. anchored in the Bay of Awatfcha, in 7 fathoms, bottom muddy; the harbour of St. Peter and St. Paul bore N. 44° E. and the volcano, N. 13° E.
29	53	1 156 42	—	—	—	—	—	{ A calm; at 1 P. M. the air from the S. E.

Anchored at Awatfcha from Sept. 8, to 9th.

Oct. and Nov. 1787.	East Long. by the Time Keeper, No. 19.	Correction.	True East Longitude.	North Latitude.	Barom.	Ther.	Varia- tion of the Needle East.	Winds; State of the Atmosphere; Remarks.
O. 1	D. M. 157 0	—	D. M. 157 0	D. M. 51 18	P. L. 27 5	D. 5 1	D. M. —	W. S. W. fresh breeze, fair
2	157 43	—	157 43	49 44	27 10	4 1	—	Ditto
3	157 46	—	157 46	47 57	27 9	5 1	—	W. fr. br. fair
4	158 4	—	158 4	46 27	27 8	5 1	—	N. N. E. str. br. fair
5	158 31	0	158 50	44 42	27 10	5 1	—	N. W. squally, rain. <i>d. n.</i> 4
6	159 40	0	159 36	43 16	28 3	8 10	54	W. S. W. ditto
7	—	0	6	—	28 4	9 3	—	S. ditto
8	161 55	0	161 47	43 17	28 0	12	—	S. W. ditto, overcast
9	162 40	0	162 30	41 23	28 1	11 1	—	N. W. ditto
10	162 41	0	162 28	40 26	28 2	11 1	12 33	S. S. E. ditto. <i>d. n.</i> 36 ¹⁰
11	163 51	0	162 55	39 41	27 10	11 1	—	S. E. l. br. overcast
12	163 35	0	163 16	38 46	28 2	12	13 12	N. N. E. l. br. fair
13	164 38	0	164 18	38 46	28 1	12 1	11 1	S. little wind overcast
14	164 39	0	164 14	38 5	28 4	14	—	S. S. W. fr. br. fair. <i>d. n.</i> 33
15	166 19	0	165 51	37 37	28 2	16 1	—	Ditto
16	168 5	0	167 34	37 37	28 1	16 1	12 42	S. W. ditto
17	170 51	0	170 17	37 28	28 0	15	—	{ N. N. W. str. breeze, rain <i>d. n.</i> 28° 50'
18	172 10	0	171 33	37 28	28 2	14	—	E. l. br. fair
19	173 46	0	173 6	37 25	27 10	14 1	—	N. N. W. fr. br. fair
20	176 15	0	175 33	37 15	28 4	12	—	W. ditto, overcast
21	178 25	0	177 40	37 4	27 9	10 1	—	N. W. str. br. ditto
22	179 40	0	179 32	37 19	27 10	11	—	S. E. little wind, ft.
23	179 48	0	179 22	36 6	28 2	11	—	N. W. fr. br. fair
	West.		West.					
24	178 20	0	179 11	35 45	27 11	16	11 50	S. ditto, overcast
25	177 28	0	178 20	34 56	28 1	16 1	10 0	Ditto
26	—	—	—	—	28 0	16 1	—	W. S. W. str. br. rain
27	175 59	0	176 53	32 37	28 0	17	—	W. l. br. fair
28	175 15	0	176 9	31 31	28 1	18	—	N. N. W. str. br.
29	175 22	0	176 16	29 37	28 4	17	—	N. E. fr. br. fair
30	175 47	0	176 41	27 33	28 3	18 1	—	E. ditto, overcast
31	176 18	0	177 3	—	28 1	20	—	S. gulls of wind, ditto
N. 1	174 43	0	175 32	26 27	28 1	21	—	S. W. little wind, rain
2	174 42	0	175 37	26 21	28 2	18	12 8	A calm, fair
3	174 53	0	175 42	25 13	28 2	20 1	12 9	E. l. br. overcast
4	175 3	0	175 59	23 40	28 3	20	—	E. N. E. fr. br. ditto
5	175 14	0	176 10	21 39	28 2	20	—	E. str. br. ditto
6	—	—	—	—	28 2	20	—	E. N. E. ditto, cl.
7	175 5	0	176 2	17 54	28 1	20 1	21 30	Ditto
8	175 6	0	176 3	16 16	28 2	20	—	Ditto
9	175 7	0	176 4	14 49	28 1	20 1	—	E. ditto
10	175 8	0	176 6	12 56	28 1	21	—	Ditto
11	—	—	—	—	28 0	21	11 15	Ditto
12	—	—	—	—	28 0	21	—	E. S. E. ditto, rain
13	—	—	—	—	28 0	21	10 35	Ditto
14	174 28	0	175 27	7 38	27 11	21	—	E. N. E. fr. br. fair. <i>d. n.</i> 10
15	—	—	—	—	27 11	20 1	9 7	Ditto, fr. br. rain
16	—	—	—	—	27 11	20	—	E. S. E. ditto
17	174 9	1	175 9	3 39	28 0	21	—	Ditto. <i>d. n.</i> 4 ¹⁰
18	174 45	1	175 56	3 9	28 0	20 1	8 30	Ditto
19	175 20	1	176 22	2 4	28 0	21	9 13	Ditto, fair
20	175 27	1	176 29	0 54	28 0	20 1	9 37	E. N. E. l. br. fair
			South.					
21	175 31	1	176 36	0 34	—	—	10 6	Ditto
22	175 7	1	176 10	1 48	28 0	20 1	10 44	Ditto

Nov. Dec. 1787.	East Long. by the Time Keeper, No. 19.	Correction.
N. 23	174 46	1
24	174 10	1
25	173 19	1
26	172 45	1
27	172 33	1
28	171 52	1
29	171 14	1
30	—	1
D. 1	169 26	1
2	168 54	1
3	168 51	1
4	168 41	1
5	169 9	1
6	169 27	1
7	170 6	1
8	170 56	1
9	171 6	1
10	—	1
11	171 20	1
12	171 21	1
13	171 28	1
14	171 53	1
15	172 16	1
16	172 43	1
17	173 14	1
18	173 49	1
19	174 8	1
20	174 33	1
21	174 46	1
22	174 36	1
23	174 30	1
24	173 34	1
25	173 16	1
26	173 30	1
27	173 52	1
28	174 17	1
29	174 55	1
30	175 26	2
31	175 37	2
1788	—	—
1	175 43	2
2	175 43	2
3	175 55	2
4	176 35	2
5	177 38	2
6	—	—
7	—	—
8	176 49	2
9	174 41	2
10	172 46	2
11	171 51	2

Atmosphere; Remarks	Lat. Dec. N. S.	East Long. by the Time Keeper, No. 19.	Correction.	True West Longitude.	South Latitude.	Barom.	Ther.	Variation of the Needle East.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	P. I.	D.	D.	D. M.	
in breeze, fair	23	174 46	1	5 175 50	2 47 28	0 20 1/2	9 44	N. E. fr. br. fair	
	24	174 10	1	6 175 16	3 28 28	0 21	—	N. l. br. fair	
or. fair	25	173 19	1	7 174 26	3 47 28	0 22	—	{ N. N. W. little wind, fair, d. n. 6°	
rain. d. n. 4°	26	172 45	1	7 173 53	3 52 27	11 20 1/2	9 9	W. N. W. ditto	
to	27	172 33	1	8 173 41	4 17 27	11 21 1/2	10 7	N. N. E. ditto	
overcast	28	171 52	2	10 173 2	5 25 28	0 22	—	N. fr. br. fair	
	29	171 14	1	11 172 24	6 16 28	0 21 1/2	—	N. N. W. ditto	
d. n. 36 1/2°	30	—	1	12 —	28	0 19	—	W. ft.	
overcast	D. 1	169 26	1	13 170 39	8 59 27	10 20	—	N. W. fr. br. rain	
or. fair	2	168 54	1	14 170 9	10 26 27	10 20 1/2	—	W. S. W. ditto, ft.	
overcast	3	168 51	2	16 170 7	11 34 27	11 19 1/2	9 53	W. l. br. fair	
fair. d. n. 33°	4	168 41	1	17 169 58	12 10 27	11 21	8 43	W. N. W. a calm	
	5	169 9	1	19 170 27	12 42 28	0 21 1/2	8 55	E. S. E. l. br. fair	
	6	169 27	1	19 170 47	13 19 28	0 21	8 45	Ditto	
tr. breeze, rain	7	170 6	1	21 171 27	14 7 28	0 20 1/2	9 42	Ditto	
o'	8	170 56	1	22 172 19	13 59 28	0 20	9 31	E. l. br. fair	
	9	171 6	1	24 172 30	14 13 28	0 21	—	E. little wind, d. n. 18 1/2°	
br. fair	10	—	—	—	28	0 21	—	E. l. br. fair	
recast	11	171 20	1	27 172 47	14 17 28	0 20 1/2	—	E. N. E. little wind, fair	
ditto	12	171 21	1	28 172 49	14 12 28	0 21	9 8	N. E. very little wind, fair	
nd, ft.	13	171 28	1	30 172 58	14 7 27	11 21 1/2	8 27	E. S. E. a calm, ditto	
fair	14	171 53	1	31 173 24	13 52 27	11 21 1/2	—	E. N. E. l. br. fair	
	15	172 16	1	33 173 49	13 33 28	0 21	—	A calm	
raft	16	172 43	1	34 174 18	13 20	—	—	Ditto	
	17	173 14	1	36 174 49	13 24 28	0 21	—	E. N. E. l. br. fair	
br. rain	18	173 49	1	37 175 26	13 59 28	0 20 1/2	—	E. S. E. ditto	
	19	174 8	1	39 175 47	14 22 28	0 21	9 13	Ditto, very little wind	
br.	20	174 33	1	41 176 14	14 48 28	0 21	—	Ditto	
fair	21	174 46	1	43 176 29	15 26 28	0 21	10 53	N. E. little wind, fair	
raft	22	174 36	1	44 176 21	—	27 11 21 1/2	—	N. N. E. fresh br. fair	
nd, ditto	23	174 30	1	46 176 16	16 3 27	11 21	—	N. N. W. gulfs of wind, rain	
ind, rain	24	173 34	1	48 175 22	17 12 27	11 20 1/2	11 38	W. N. W. fr. br.	
	25	173 16	1	50 175 6	18 11 27	11 19	—	N. N. W. l. br. fair	
raft	26	173 30	1	52 175 22	—	28 4 19 1/2	—	Ditto	
r. ditto	27	173 52	1	54 175 46	18 35 28	0 19	—	N. cloudy	
o, cl.	28	174 17	1	56 176 13	18 25 27	11 19	—	Do. rain. d. n. 29° 21' 30"	
	29	174 55	1	58 176 53	18 43 27	10 18 1/2	—	N. N. E. l. br. fair	
	30	175 26	2	0 177 26	19 55 27	11 19 1/2	11 30	N. N. W. fr. br.	
	31	175 37	2	2 177 39	21 4 27	11 19 1/2	10 57	N. N. E. l. br.	
1788									
	1	175 43	2	4 177 47	21 39 27	11 19 1/2	11 38	{ S. S. W. very little wind, d. n. 33°	
rain	2	175 43	2	6 177 48	22 26 27	11 19 1/2	10 50	W. S. W. l. br.	
fair. d. n. 10°	3	175 55	2	8 178 4	22 36 27	11 19	10 27	{ S. S. W. very little wind, fair. d. n. 34°	
rain	4	176 35	2	10 178 45	22 20 28	0 18 1/2	10 5	Ditto, l. br. fair	
go	5	177 38	2	12 179 50	22 41 28	0 19 1/2	—	N. E. ditto	
	6	—	—	—	23 21 28	0 19	—	Ditto	
	7	East.	—	East.	—	27 11 17 1/2	—	E. N. E. fr. br. d. n. 37°	
t. fair	8	176 49	2	18 174 31	25 0 28	0 18	—	Ditto, fr. br.	
	9	174 41	2	20 172 21	25 51 28	0 18	—	Ditto, d. n. 39°	
	10	172 46	2	22 170 24	26 42 28	0 18	—	N. E. fr. br.	
	11	171 51	2	24 169 28	28 0 27	11 15	—	{ N. N. E. fr. br. overcast. d. n. 46° 45'	

Jou. 1786.	East Long. by the Time Piece, No. 19.	Correction.	True East Longitude.	South Latitude.	Barom.	Ther.	Variation of the Needle East.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	P. L.	D.	D. M.	
J. 12	169 47	2 25	167 22	28 57	27 8	16 1	—	W. l. br. fair. <i>d. n.</i> 51° 34'
13	168 32	2 27	166 5	29 1	27 10	16	—	S. E. fr. br. fair.
14	167 11	2 28	164 43	29 7	27 11	16	—	E. S. E. ditto
15	165 6	2 30	162 37	29 26	28 1	16 1	—	E. N. E. ditto. <i>d. n.</i> 49° 33'
16	163 11	2 31	160 40	30 26	28 1	17 1	9	Ditto
17	161 9	2 32	158 38	31 28	28 2	18	9	N. E. fr. br. fair. <i>d. n.</i> 54°
18	159 22	2 33	156 49	32 27	28 1	18	10	N. N. E. fr. br. fair
19	157 55	2 33	155 23	32 48	28 2	18	10	N. E. ditto. <i>d. n.</i> 55 1/2°
20	155 31	2 34	153 18	33 17	28 3	18	9	Ditto
21	154 38	2 34	152 4	34 22	28 3	18	9	E. N. E. l. br. fair
22	153 60	2 35	151 25	34 9	28 3	18	11	A calm, fair. <i>d. n.</i> 56° 32'
23	152 40	2 35	150 5	33 43	28 3	18	11	S. E. fr. br. fair
24	152 44	2 35	150 8	34 9	28 1	17	—	N. N. W. fr. br.

N. B. By a mean taken between many series of distances of the moon from the sun the error of the time-keeper, No. 19, was ascertained by the observed longitudes; we afterwards interpolated the variations which the diurnal corrections should undergo, in order to deduce from thence the true longitudes.

Here follow the results produced by the lunar observations, or series, reduced to a fixed epoch,

	D. M. S.
Oct. 6.	0 4
Nov. 2.	0 55
18.	1 1
Dec. 4.	1 16
18.	1 37
Jan. 4.	2 8
16.	2 31

According to this series we reduced the true daily longitudes, which served us for the true longitude of our arrival at New Holland.

br. fair. *d. n.* 51° 34'
 fr. br. fair.
 E. ditto
 E. ditto. *d. n.* 49° 33'
 fr. br. fair. *d. n.* 54°
 E. fr. br. fair
 ditto. *d. n.* 55½°
 E. I. br. fair
 ditto, fair. *d. n.* 56° 32'
 fr. br. fair
 W. fr. br.

the moon from the sun
 observed longitudes; w
 tions should undergo, i

		D.	M.	S.
Oct.	6.	0	4	
Nov.	2.	0	55	
	18.	1	1	
Dec.	4.	1	16	5
	18.	1	37	4
Jan.	4.	2	8	3
	16.	2	31	0

es, which served us for the

TABLES,

SHEWING

THE COURSE OF L'ASTROLABE,

DURING THE YEARS

1785, 1786, AND 1787,

*From the Time of the Ship's sailing from Europe,
 till its Arrival in Kamtschatka.*

Lat. N. or S.	North Latitude.		Computed Longitude West.	
	D.	M.	D.	M.
7	43	18	14	10
8	38	55	15	4
9	36	44	16	34
10	34	46	17	4
11	33	6	17	4
12	32	8	19	20
13	32	42	—	—
14	—	—	—	—
15	—	—	—	—
16	—	—	—	—
17	31	25	19	7
18	30	17	18	9
19	28	30	18	29
20	—	—	—	—
21	—	—	—	—
22	—	—	—	—
23	—	—	—	—
24	—	—	—	—
25	—	—	—	—
26	—	—	—	—
27	—	—	—	—
28	—	—	—	—
29	—	—	—	—
30	—	—	—	—
31	27	6	18	52
1	25	9	19	21
2	23	54	19	48
3	22	11	20	38
4	21	20	21	9
5	19	33	21	56
6	17	37	22	26
7	16	19	22	20
8	15	44	22	13

Lat.	North Latitude.	Computed Longitude.	West Long. by the Time Keeper.	West Long. by the Diff. of the w. from the Sun.	Variation of the Needle.	Ther. Inter. or observed at noon.	Barom. of Mairn, observed at noon, 11th Aug. 55, and after, at 9 in the mor. & 3 in aft.	Winds; State of the Atmosphere; Remarks.
D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D.	L. P. P. I.	
7	41 18	14 10	—	—	—	16 9	28 3	N. E. moderate br. fair
8	38 55	15 41	15 12	—	—	17	Do.	{ N. E. and N. N. E. fr. br. hazy
9	36 44	16 34	15 31	—	—	19	28 2	N. E. moderate br. fair
10	34 46	17 4	16 10	15 11	—	19	28 3	Ditto
11	33 6	17 45	16 39	15 17	—	19	28 2	Ditto
12	32 8	19 20	18 13	—	—	19	28 3	{ N. N. E. and N. little wind, hazy
13	32 42	—	19 11	—	18 18	20	Do.	N. E. mod. wind, fair
14	—	—	—	—	—	21	28 4	{ N. E. varying to S. E. round by E. a calm, fair
15	—	—	19 32	—	—	21	28 3 28 3	{ N. E. varying to E. N. E. and to S. W. round by S. moderate br. hazy
16	—	—	—	—	—	21	Do. Do.	N. E. moderate br. fair
17	31 25	19 7	18 44	—	17 40	20	28 4 28 4	N. N. E. mod. br. fair
18	30 17	18 9	—	—	—	20	28 5 28 5	N. E. l. br. fair
19	28 30	18 29	—	—	—	21	28 4 28 3	{ N. N. E. moderate br. fair
20	—	—	—	—	—	19	28 3 Do.	N. E. moderate br. rain
21	—	—	—	—	—	21	Do. Do.	N. E. little wind, rain
22	—	—	—	—	—	22	Do. Do.	{ N. varying to N. E. little wind, misty
23	—	—	—	—	—	22	28 4 Do.	{ N. E. varying to E. N. E. moderate br. fair
24	—	—	—	—	16 45	22	Do. Do.	N. E. mod. br. fair
25	—	—	—	—	—	21	28 3 Do.	N. E. l. br. fair
26	—	—	—	—	16 58	22	Do. Do.	N. E. very little w. fair
27	—	—	—	18 18	14 32	22	28 4 28 4	{ E. varying to E. N. E. fresh breeze, fair. d. n. 53°
28	—	—	—	—	14 56	22	Do. Do.	{ E. N. E. varying to the N. E. mod. br. fair
29	—	—	—	—	16 7	22	Do. 28 3	N. E. little wind, fair
30	—	—	—	—	17 5	23	28 3 28 2	N. N. E. little wind, fair
31	27 6	18 52	18 46	—	19 12	22	Do. Do.	N. E. moderate br. fair
32	25 9	19 21	19 44	—	15 35	23	28 2 Do.	{ N. E. varying to E. l. br. fair
33	23 54	19 48	—	—	—	22	28 3 Do.	{ N. E. and E. N. E. fr. br. fair
34	22 11	20 38	20 42	—	14 57 13 38	22	28 2 Do.	N. E. fr. br. foggy
35	20 21	9 21	17	—	—	23	Do. Do.	{ N. E. varying to N. W. round by N. little wind, hazy
36	19 33	21 56	22 14	—	—	22	Do. Do.	{ N. E. varying to N. N. E. moderate br. hazy
37	17 37	22 26	22 24	—	12 20	23	Do. 28 1	{ N. E. moderate br. foggy and stormy
38	16 19	22 20	22 19	—	12 31	23	Do. Do.	N. E. l. br. fair
39	15 44	22 13	—	—	—	25	Do. Do.	{ N. E. varying to the E. S. E. 4 by E. stormy

Sept. and Oct. 1779.	North Latitudes.	Computed Longitude West.	West Long. by the Time Keeper. No. 10.	West Long. by the Sun. No. 10.	Variation on the Nettle West.	Ther- momet- er at 12 noon.	Baromet- er at 12 noon.	Winds & State of the Atmosphere Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
S. 9	14 57	12 18	22 19	—	11 42 11 40	25	28 2 28 2	S. S. E. varying to N. N. W. round by E. almost a calm, ft.
10	14 11	22 24	22 11	22 10	11 3	25	28 2 28 2	N. varying to E. E. round by E. br. fair. d. n. 124
11	13 57	22 27	—	—	11 31	27	28 3 28 2	E. varying to S. W. little wind, ft.
12	13 11	22 20	22 3	—	—	21	28 3 28 2	E. S. E. varying to W. N. W. round by little wind, ft.
13	12 12	22 24	21 57	22 5	10 59	22	28 3 28 2	S. varying to N. N. E. round by W. br. hazy
14	11 4	22 24	—	—	10 40	25	28 2 28 1	N. N. E. varying to N. N. W. round by N. l. br. fair
15	10 8	22 24	21 31	—	10 45	25	28 2 28 2	N. N. W. and N. l. little wind, hazy
16	9 10	21 36	19 37	—	—	25	28 2 28 1	N. N. W. varying to S. W. round by W. l. br. hazy
17	8 31	20 46	18 49	—	11 0	24	28 2 28 2	W. S. W. and S. W. mod. br. rain
18	7 39	20 11	18 42	—	10 58	24	28 2 28 2	S. W. varying to S. W. l. br. fair
19	7 13	20 6	—	—	—	25	28 3 28 2	W. S. W. varying to N. round by W. l. tie wind, fair
20	6 10	19 58	18 24	—	—	24	28 2 28 2	N. varying to W. br. hazy
21	5 13	19 29	17 43	—	—	23	28 2 28 2	N. W. varying to S. W. round by W. l. br. hazy
22	4 37	18 34	16 43	—	—	23	28 3 28 2	W. S. W. and S. W. mod. br. hazy
23	3 43	18 21	16 11	16 11	—	23	28 3 28 2	N. varying to W. W. round by W. br. hazy
24	2 46	17 23	15 0	—	—	24	28 3 28 2	W. S. W. varying to S. W. little wind, fair
25	1 20	16 33	14 4	—	—	24	28 3 28 2	S. W. varying to S. E. round by S. l. w. hazy. d. n. 94
26	1 41	17 30	15 15	15 7	11 31	23	28 3 28 2	S. and S. S. E. moderate br. rain
27	1 24	18 11	—	—	—	23	28 2 28 2	S. S. W. and S. S. E. br. rain
28	0 55	19 8	17 1	17 43	—	23	28 2 28 2	S. S. E. and S. E. br. rain
29	0 11	20 11	18 2	—	—	22	28 3 28 2	S. E. mod. br. hazy
South.								
30	0 41	20 35	18 29	—	9 56	22	28 3 28 2	S. E. l. breeze, fair d. n. 84
Oct. 1	1 40	21 16	19 0	—	9 55	22	28 3 28 2	S. E. ditto. d. n. 70

Wind; State of the Atmosphere; Remarks.	Lat.	South Latitude.	Computed Longitude.		West Long. by the Time Keeper, No. 18.		West Long. by the alt. of the sun.		Variation of the Needle.		Ther. bar. observed at noon.		Barometer of Mairan, observed at 9 in the morning, and 3 in the afternoon.				Wind; State of the Atmosphere; Remarks.	
			D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.			
S. S. E. varying to N. N. W. round by E. almost a calm, ft.	0	3	53	21	49	19	41	—	9	40	22	28	3	28	2	S. E. varying to E. S. E. l. br. fair. <i>d. n.</i> 6° 12' 30"		
N. varying to E. S. E. round by E. br. fair. <i>d. n.</i> 31°	2	3	4	22	22	18	20	25	—	8	40	22	28	3	28	2	S. E. and E. S. E. do. <i>d. n.</i> 41°	
E. varying to S. W. little wind, ft.	2	4	5	42	22	48	20	50	—	8	32	22	28	3	28	2	E. S. E. rain. <i>d. n.</i> 2°	
E. S. E. varying to W. N. W. round by little wind, ft.	2	5	7	51	23	10	21	22	—	7	23	21	28	3	28	2	S. E. varying to E. S. E. l. br. gusts of wind, rain. <i>d. n.</i> 2°	
S. varying to N. N. E. round by W. br. hazy	2	6	8	11	23	37	22	7	—	8	13	22	28	3	28	2	E. and E. S. E. l. br. fair. <i>d. n.</i> 31°	
N. N. E. varying to N. N. W. round by N. l. br. fair	1	7	9	34	24	6	22	42	23	21	6	40	22	28	3	28	2	E. l. br. hazy. <i>d. n.</i> 61°
N. N. W. and N. l. br. fair	2	8	11	4	24	29	23	19	24	4	—	22	28	3	28	2	E. S. E. and E. moderate br. fair	
N. N. W. varying to S. W. round by l. br. hazy	1	9	12	19	25	0	23	52	24	23	5	49	21	28	3	28	2	E. and E. S. E. l. br. rain. <i>d. n.</i> 11°
W. S. W. and S. W. mod. br. rain	2	10	13	37	25	26	24	3	—	4	43	21	28	3	28	2	E. and E. S. E. mod. br. gusts of w. rain	
S. W. varying to S. W. l. br. fair	2	11	14	38	25	44	—	26	9	4	43	20	28	3	28	3	E. S. E. and S. E. mod. br. do. <i>d. n.</i> 255°	
W. S. W. varying to N. round by W. l. br. hazy	2	12	15	52	26	14	25	21	27	0	4	30	20	28	3	28	3	E. S. E. and E. l. br. gusts of wind, rain
N. varying to W. br. hazy	2	13	17	7	26	58	26	0	—	3	30	19	23	4	28	1	E. and E. S. E. mod. br. fair	
N. W. varying to S. W. round by W. l. br. hazy	2	14	18	42	27	43	26	49	—	2	33	19	28	4	28	3	E. and E. N. E. mod. br. fair. <i>d. n.</i> 23°	
W. S. W. varying to N. round by W. l. br. hazy	2	15	20	28	28	28	26	49	—	1	38	21	28	3	28	3	E. and E. N. E. mod. br. fair	
N. varying to W. br. hazy	2	16	20	43	30	19	28	53	—	1	0	21	28	3	28	2	N. E. varying to N. mod. br. fair	
N. W. varying to S. W. round by W. l. br. hazy	2	17	20	42	31	11	29	51	—	1	28	22	28	1	28	1	N. varying to N. W. moderate br. hazy. <i>d. n.</i> 261°	
W. S. W. and S. W. mod. br. hazy	4	18	20	42	31	11	29	54	—	1	50	22	28	2	28	2	N. and N. N. W. l. br. fair	
N. varying to W. W. round by W. br. hazy	2	19	21	7	32	29	—	—	—	1	45	20	28	3	28	2	N. varying to N. W. and to the S. round by W. l. br. hazy. <i>d. n.</i> 283°	
W. S. W. varying to S. W. little wind fair	2	20	20	44	33	44	—	—	—	20	—	—	28	2	28	2	S. varying to E. S. E. mod. br. rain	
S. W. varying to S. E. round by S. l. br. hazy. <i>d. n.</i> 9°	2	21	20	49	34	40	34	0	—	2	24	19	28	2	28	2	S. E. ditto	
S. and S. S. E. moderate br. rain	2	22	20	30	36	10	34	26	—	2	24	—	28	3	28	3	S. S. E. and S. mod. br. fair	
S. S. W. and S. S. E. do.	2	23	20	30	37	13	35	43	37	36	2	16	19	28	4	28	3	S. varying to S. S. E. l. br. fair
S. S. E. and S. E. br. rain	2	24	21	26	38	0	—	—	—	4	36	19	28	3	28	2	S. E. varying to E. S. E. mod. br. fair	
S. E. mod. br. hazy	2	25	23	28	39	51	—	—	—	19	—	—	27	11	27	9	E. and E. N. E. mod. br. hazy	
S. E. l. breeze, fair. <i>d. n.</i> 81°	2	26	24	14	40	50	39	34	1	3	—	20	27	9	27	11	E. N. E. varying to W. N. W. round by S. mod. br. ft.	
S. E. ditto. <i>d. n.</i> 7°	2	27	25	5	41	43	39	36	41	44	7	6	20	28	0	28	0	W. N. W. and N. l. br. fair

Oct. and Nov. 1785.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 18.	West Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle East.	Ther. inter. observ- ed at noon.	Barometer of Nairne, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
O 28	24 47	42 0	39 34	41 41	7 9	20	28 2 28 2	{ W. varying to S. W. little wind hazy
29	24 47	42 56	—	—	7 14	20	28 2 28 2	{ S. varying to E. N. E. little wind, fair
30	25 25	44 29	—	—	—	21	28 1 27 11	{ N. varying to E. S. N. little wind, fog gy. d. n. 36½°
31	25 42	45 10	—	—	—	21	28 1 28 0	Ditto
N. 1	26 50	46 35	—	—	9 5	20	28 1 28 1	{ S. E. and E. S. E. br. rain
2	27 39	47 38	45 33	—	9 4	20	28 0 2 11	{ E. varying to N. W. l. br. fair
3	27 30	49 5	—	—	—	19	28 2 28 2	{ N. N. W. varying to S. S. E. round by S. l. br. fair
4	27 9	49 5	—	—	—	19	28 1 28 1	{ S. E. varying to S. little wind, rain
5	27 0	49 39	—	—	9 55	19	28 2 28 2	S. S. E. and S. l. br. rain
6	27 18	—	—	—	—	19	28 2 28 2	{ E. S. E. varying to N. l. br. ft.
7	—	—	47 16	—	—	20	— —	{ S. and S. E. mode- rate br. hazy
8	—	—	—	—	—	19	28 2 28 2	{ S. E. varying to E. N. E. little wind, hazy
9	—	—	—	—	—	19	— —	N. E. l. br. hazy
10	—	—	—	—	—	19	— —	{ N. varying to N. N. E. mod. br. rain
11	—	—	—	—	—	20	28 1 —	{ E. varying to E. N. E. mod. br. rain
12	—	—	—	—	—	20	28 1 28 0	{ S. E. and E. S. E. l. br. hazy
13	—	—	—	—	—	20	— —	{ S. varying to E. a calm, do.
14	—	—	—	—	—	20	— 28 0	{ N. E. and E. N. E. l. br. fair
15	—	—	—	—	—	21	— 28 1	{ N. N. E. varying to S. W. round by E. very lit. wind, rain
16	—	—	—	—	—	—	— —	S. E. and E. l. br. fair
17	—	—	—	—	—	20	28 2 28 2	{ E. varying to N. E. moderate br. ft. d. n. 39° 52' 30"
18	—	—	—	—	—	21	28 2 28 1	{ N. varying to N. N. W. little wind, ft. d. n. 38°
19	—	—	—	—	—	21	28 0 28 1	{ N. N. E. varying to S. W. round by E. a calm, fair. d. n. 41°
20	27 39	49 19	—	—	9 19	20	28 2 28 1	{ S. varying to S. W. mod. br. fair
21	28 3	48 37	48 22	47 52	—	19	28 2 28 1	{ S. varying to S. W. l. br. fair
22	28 52	48 10	—	—	8 10	19	28 1 28 0	{ S. varying to N. E. mod. br. hazy
23	30 59	46 39	46 34	46 37	—	20	28 1 28 0	{ N. E. and E. N. E. mod. br. hazy

Oct. and Nov. 1785.	South Latitude.	Computed Longitude West.
	D. M.	D. M.
N 24	31 37	46 1
25	32 37	45 39
26	33 39	44 49
27	35 0	44 1
28	35 23	44 40
29	35 43	43 57
30	36 27	43 8
D. 1	37 41	41 3
2	38 39	40 31
3	39 56	39 4
4	40 49	38 1
5	42 34	37 3
6	43 50	37 1
7	44 42	36 1
8	45 9	36 1
9	44 17	36 2
10	44 60	37 1
11	44 50	37 3
12	44 33	38 3
13	45 20	39 2
14	44 1	39 5
15	43 28	40 1
16	44 18	42 2
17	44 44	42 1
18	44 55	43 1

of the Atmosphere
Remarks.

ying to S. W.
wind hazy
ing to E. N.
le wind, fair
ying to E. S.
le wind, fog
n. 36½°
and E. S. E.
in
ying to N. W.
fair
W. varying
E. round by S.
fair
varying to S.
wind, rain
d S. l. br. rain
E. varying to
br. ft.
S. E. mode
r. hazy
ying to E. N.
le wind, hazy
r. hazy
ing to N. N.
l. br. rain
ing to E. N.
l. br. rain
and E. S. E. l.
y
ing to E. S.
do.
and E. N. E.
fair
E. varying to
round by E.
wind, rain
E. l. br. fair
ing to N. E.
te br. ft. d.n.
30"
ing to N. N.
le wind, fl.
30°
r. varying to
round by E. a
fair. d.n. 41°
ing to S. S. W.
r. fair
ing to S. W.
fair
ing to N. E.
r. hazy
and E. N. E.
r. hazy

Lat. and Long. 1850	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 18.	West Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle E. ft.	Ther. Inter- observ- ed at noon.	Barometer of Naime, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere; Remarks.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.		
N 24	31	37 46	11 46	5 46	6	—	20	28 2 28 2	N. E. varying to S. S. W. round by N. l. br. foggy
25	32	37 45	39 45	35 45	43	—	18	28 2 28 2	E. S. E. varying to N. N. E. round by E. l. br. foggy
26	33	39 44	45	—	—	10 24	18	28 2 28 1	N. E. and E. N. E. little wind, hazy
27	35	0 44	11	—	—	—	18	27 11 27 8	E. N. E. and E. l. br. r.
28	35	23 44	40 44	20	—	9 57	17	27 11 23 0	E. var. to S. fr. br. rain
29	35	43 43	57	—	—	9 40	17	28 2 28 3	S. S. W. varying to W. mod. br. hazy
30	36	27 43	8 42	1	—	—	18	28 3 28 3	W. varying to W. N. W. l. br. fair
D. 1	37	41 41	31 39	57	—	—	17	28 3 28 2	W. N. W. l. br. hazy. d. n. 50½°
2	38	39 40	37 38	29	—	—	18	28 1 28 1	N. W. and W. N. W. l. br. foggy
3	39	56 39	4 37	0	—	8 33	16	27 9 27 11	N. W. var. to W. S. W. gusts of wind, r.
4	40	49 38	1 36	2	—	8 28	13	28 1 28 1	S. W. and S. S. W. mod. br. hazy
5	42	34 37	36 35	17	—	—	14	28 0 27 11	W. S. W. and W. mod. br. hazy
6	43	50 37	12 34	32	—	—	13	27 10 27 10	N. W. var. to S. W. round by W. mod. br. rather foggy
7	44	42 36	17 33	43	34 36	—	12	28 0 28 0	W. S. W. and S. S. W. mod. br. hazy
8	45	9 36	16 33	24 35	12	7 41	11	27 10 27 9	S. W. and W. mod. br. r.
9	44	17 36	20 33	11 34	18	7 40	11	27 11 27 11	W. and W. N. W. do.
10	44	60 37	11	—	—	—	13	27 8 27 6	W. N. W. and N. W. l. br. foggy
11	44	50 37	39 34	38	—	—	11	27 7 27 10	N. N. W. varying to S. round by W. gusts of wind and r.
12	44	33 38	38	—	—	7 46	11	27 9 27 8	S. S. W. varying to N. round by W. fr. br. rain
13	45	20 39	28	—	—	8 43	12	27 9 27 9	N. W. and N. fr. br. foggy
14	44	139 53	36 4	—	—	8 45	11	28 1 28 2	W. N. W. and W. S. W. l. br. gusts of wind, rain
15	43	28 40	57 36	57	—	8 29	11	28 3 28 1	W. S. W. and W. N. W. little wind, fair weather
16	44	18 42	20	—	—	—	13	27 10 27 11	N. W. varying to S. W. round by W. l. br. foggy
17	44	44 42	35	—	—	10 38	12	28 1 28 0	W. varying to N. E. round by S. little wind, hazy
18	44	55 43	56 40	9	—	12 15	12	28 0 28 1	N. varying to S. W. round by W. mod. br. rain

Dec. 1785. Jan. 1786.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 18.	West Long. by the Diff. of the Mo. from the Sun.	Variation of the Needle East.	T. Inter. observ. ed at noon.	Barometer of Mairne, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
D 19	44 35	45 40	41 54	—	13 0	11	27 11 27 11	S. W. varying to E. S. E. round by S. l. br. hazy
20	44 43	46 48	—	—	13 12	12	27 10 27 10	S. E. varying to W. N. W. round by W. little wind, do.
21	44 53	47 50	44 46	—	—	13	27 9 27 9	S. W. varying to W. N. W. round by W. l. br. foggy
22	44 50	48 23	44 55	43 60	13 41	13	27 10 27 10	N. W. varying to W. S. W. round by W. l. br. rather foggy
23	43 25	48 21	45 13	44 32	—	13	27 11 27 11	S. W. and W. S. W. guffs of wind, fair
24	43 26	48 44	—	—	13 45	13	27 8 27 9	W. S. W. and S. W. guffs of wind, rain
25	42 27	49 29	47 9	46 43	13 55	12	28 0 28 1	S. W. and S. S. W. str. br. hazy
26	42 32	49 47	—	—	14 0	13	27 10 27 10	S. W. and N. W. round by W. l. br. h.
27	42 20	50 36	48 23	—	14 8	13	27 9 27 9	E. N. E. var. to S. E. round by S. l. br. r.
28	42 15	51 36	49 3	—	—	13	27 10 27 8	S. S. W. and N. W. round by W. little wind, fair
29	41 46	52 41	—	—	15 8	13	27 11 28 0	N. N. W. varying to S. S. W. round by W. guffs of w. rain
30	42 11	53 38	50 33	—	—	14	27 10 27 9	S. varying to N. W. round by W. mod. br. hazy
31	42 22	54 41	—	—	—	15	27 8 27 10	N. W. varying to S. S. W. round by W. mod. br. guffs of wind, rain
1786								
J. 1	41 33	55 16	52 33	—	15 58	14	27 9 27 11	S. S. W. and S. fr. br. guffs of wind, rain
2	41 31	56 25	53 17	—	—	15	28 2 28 1	S. S. W. varying to S. E. and to N. round by W. little w. fair
3	42 37	57 58	54 28	54 31	16 44	16	27 10 27 11	N. varying to W. S. W. round by W. mod. br. hazy
4	42 45	50 35	55 47	56 0	—	16	28 0 27 11	W. varying to S. E. round by N. l. br.
5	43 34	60 35	56 49	57 31	—	16	27 10 27 9	N. N. E. varying to S. E. round by W. little W. ft.
6	44 53	61 19	57 24	—	17 29	15	27 9 27 4	E. N. E. varying to W. S. W. round by W. irregular guffs of wind, rain
7	44 55	61 58	58 26	—	18 20	14	27 9 27 8	S. W. varying to N. N. W. round by W. fr. br. hazy

Jan. 1786.	South Latitude.	Computed Longitude West.	
	D. M.	D. M.	
1	8 45	32 62	51
	9 46	47 64	1
	10 47	47 64	27
	11 48	14 64	40
	12 47	53 65	24
	13 46	50 66	33
	14 47	52 67	58
	15 48	57 68	58
	16 49	45 69	7
	17 50	46 69	51
	18 49	58 70	4
	19 50	11 71	31
	20 50	58 72	5
	21 51	34 73	1
	22 52	22 72	5
	23 53	41 68	3
	24 54	33 67	1
	25 56	17 68	
	26 57	8 68	3
	27 57	57 69	3
	28 57	52 71	4
	29 58	18 73	

ROUND THE WORLD.

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the Atmosphere marks.	Jan. 1856.	South Latitude.	Computed Longitude West.		West Long. by the Time Keeper, No. 18.		West Long. by the Dist. of the No. from the Sun.		Variation of the Needle East.		Ther. Inter. observ- ed at noon.		Barometer of Nairne, observed at 9 in the morn- ing, and 3 in the afternoon.		Winds; State of the Atmosphere; Remarks.	
		D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L.	P. L.	P. L.	P. L.	
varying to E. round by S. l.	1	8 45	32 62	51 59	26 60	13 19	0 13	27 8	27 9							W. S. W. varying to S. mod. br. gusts of wind, hazy
varying to W. round by W. ind, do.	9	46 47	64 1	—	—	19 30	12 27	5 27	4							W. S. W. and W. N. W. mod. br. cl.
varying to W. round by W.	10	47 47	64 27	61 1	—	20 3	11 27	5 27	6							N. W. and W. S. W. l. b. cl.
oggy	11	48 14	64 40	61 38	—	20 24	11 27	7 27	8							W. and S. S. W. lit- tle wind, fair
varying to W. round by W. rather foggy	12	47 58	65 24	62 30	—	20 25	11 27	8 27	9							W. S. W. and S. lit- tle wind, fair
and W. S. W.	13	46 50	66 33	63 37	—	—	12 28	2 28	2							S. W. mod. br. gusts of wind, cl.
f wind, fair	14	47 52	67 58	64 47	—	20 50	11 27	9 27	10							W. S. W. and N. W. mod. br. rain
V. and S. W.	15	48 57	68 58	65 51	—	21 41	12 27	8 27	8							W. varying to N. N. E. round by N. and to W. S. W. round by W. l. br. fair
f wind, rain	16	49 45	69 7	66 10	—	21 58	11 27	11 28	0							W. varying to S. W. round by W. little wind, fair
and S. S. W.	17	50 4	69 55	67 7	—	22 11	10 28	2 28	3							W. N. W. varying to S. S. E. round by S. l. br. cl.
hazy	18	49 58	70 45	68 1	—	22 52	10 28	3 28	4							S. S. E. varying to S. W. round by S. l. br. fair
and N. W.	19	50 11	71 39	68 56	—	23 27	11 28	4 28	3							S. varying to N. E. round by E. little wind, cl.
by W. l. br. h.	20	50 58	72 58	70 29	68 34	23 18	12 28	2 28	1							N. E. and E. N. E. l. br. fair. d. n. 64 ¹⁰
var. to S. E.	21	51 34	73 17	—	69 17	22 55	12 28	2 28	2							N. N. W. and S. S. E. round by E. lit. w. do.
by S. l. br. r.	22	52 22	74 55	70 49	69 32	22 47	13 28	2 28	1							S. E. varying to W. N. W. round by E. and N. cl.
and N. W.	23	53 41	68 32	69 43	68 40	—	11 28	3 28	1							N. W. varying to S. W. mod. br. hazy
by W. little	24	54 33	67 10	67 58	66 50	—	11 27	11 27	10							N. W. and N. N. W. mod. br. cl. d. n. 68 ¹⁰
g to W. S.	25	56 17	68 8	67 47	—	—	11 27	8 27	8							N. N. W. and S. W. round by W. l. br. cl. rain
nd by W. hazy	26	57 8	68 35	67 51	—	—	10 27	7 27	5							S. W. and W. mod. br. hazy
ng to S. E.	27	57 57	69 32	67 45	—	—	9 27	4 27	3							W. S. W. and W. gusts of wind, rain
N. l. br.	28	57 52	71 43	70 19	—	—	9 27	6 27	9							W. and W. N. W. var. to S. E. round by S. l. br. cl.
varying to	29	58 18	73 13	70 60	—	—	9 27	5 27	4							S. S. E. and W. S. W. round by S. mod. br. rain
round by W.																
gy																

Jan. and Feb. 1786.	South Latitude.		Computed Longitude West.		West Long. by the Time Keeper, No. 18.		West Long. by the Diff. of the No. from the Sun.		Variation of the Needle East.		Ther. in er. observ ed at noon.	Barometer of Nairne, observed at 9 in the morning, and 3 in the afternoon.			Winds; State of the Atmosphere Remarks.		Feb. and March 1786.	South Latitude.		Computed Longitude West.	
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.			D.	M.	D.	M.
J. 30	57	53	73	47	71	37	—	—	—	—	9	27	7	27	7	W. and W. S. W. gufts of wind, hazy	F. 20	40	1	83	39
	31	58	38	74	13	—	—	—	—	—	9	27	8	27	6	W. S. W. and W. N. W. little wind, rain	21	39	5	81	49
F. 1	57	59	75	10	73	4	—	—	—	—	9	27	8	27	8	W. and W. S. W. l. br. rather foggy	22	37	51	80	41
	2	58	22	76	41	74	22	—	27	3	9	27	8	27	7	W. and W. N. W. little wind, cl. rain. d. n. 69° 37' 30"	23	36	42	79	46
												27	11	26	7						
												At noon.	At 7 P.M.			W. N. W. and N. N. W. moderate br. rain	24	—	—	—	
	3	58	52	78	53	76	33	—	—	—	9	26	10	26	11						
												At half past 1.	At Midn.								
	4	58	48	79	20	76	27	—	27	11	9	27	1	27	2	N. varying to W. S. W. fr. br. gufts of wind, rain	25	—	—	—	
	5	59	38	80	28	77	20	—	—	—	8	27	3	27	1	W. S. W. and N. W. round by W. gufts of wind	26	—	—	—	
	6	60	37	82	1	79	1	—	—	—	8	27	0	27	1	W. and W. S. W. mod. br. rain	27	—	—	—	
	7	59	20	83	43	80	53	—	—	—	8	27	3	27	1	S. W. and S. S. W. gufts of wind, rain	28	—	—	—	
	8	58	40	85	2	81	32	—	—	—	7	27	1	27	3	S. W. a calm. Afterwards E. N. E. and E. S. E. cl.	M. 1	—	—	—	
	9	57	15	88	12	84	32	—	—	—	7	27	4	27	4	E. S. E. varying to S. S. W. gufts of wind, cl. d. n. 70° 11' 15"	2	—	—	—	
	10	56	0	89	9	85	26	—	—	—	7	27	4	27	6	S. S. E. varying to S. W. round by S. irregular gufts of wind, overcast, rain	3	—	—	—	
	11	53	47	89	44	86	20	—	—	—	8	27	9	27	9	S. S. W. and W. S. W. mod. br. cl.	4	—	—	—	
	12	53	8	89	46	86	21	—	—	—	9	27	6	27	6	S. W. varying to N. W. round by W. l. br. foggy	5	—	—	—	
	13	51	17	89	22	86	7	—	—	—	9	27	8	27	7	S. W. and W. S. W. irregular gufts of w. rather foggy	6	—	—	—	
	14	49	58	88	59	86	1	—	—	—	9	27	10	27	10	W. S. W. and W. N. W. l. br. rain	7	—	—	—	
	15	48	3	88	21	85	15	—	—	—	10	27	8	27	7	W. N. W. and W. S. W. gufts of wind, rain	8	—	—	—	
	16	45	24	87	39	84	39	—	—	—	10	27	11	28	1	W. and S. W. fr. br. ra. S. S. W. and W. N. W. round by W. moderate br. rather foggy	9	—	—	—	
	17	43	27	86	41	83	28	—	—	—	11	28	1	28	2	W. and S. W. l. br. foggy. d. n. 62½°	10	—	—	—	
	18	42	19	86	3	82	41	—	—	—	13	28	1	28	0	S. S. W. and W. N. W. l. br. mist	11	—	—	—	
	19	41	4	85	1	81	29	—	—	—	14	28	1	28	2		12	—	—	—	
																	13	—	—	—	
																	14	—	—	—	
																	15	—	—	—	
																	16	—	—	—	
																	17	—	—	—	
																	18	36	38	75	5
																	19	35	29	77	
																	20	33	40	79	1
																	21	32	33	81	3
																	22	31	29	83	5

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the Atmosphere marks.	Bar- omet- er.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 28.	West Long. by the alt. of the Mo. from the Sun.	Variation of the Needle East.	Ther- inter. observed at noon.	Barometer of Mairre, observed 1. in the morn- ing, and 3. in the afternoon.	Winds; State of the Atmosphere; Remarks.
		D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
W. S. W. wind, hazy	20	40	1 83 39	80 3 78 39	17 29 15	28 1 28 3			{ S. S. W. and W. N. W. moderate br. cl.
and W. N. E. wind, rain	21	39	5 81 49	78 17 77 9	15 39 45	28 1 28 2			{ S. W. varying to S. E. round by S. l. br. hazy
W. S. W. l. br. foggy	22	37	51 80 41	77 28 76 28	15 0 15	28 2 28 2			{ S. S. E. varying to S. W. l. br. fair
and, cl. rain. 37° 30"	23	36	42 79 46	76 31 75 45	14 49 15	28 1 28 1			{ S. and S. S. W. moderate br. fair
W. and N. moderate br.	24	—	—	—	—	14	28 2 28 2		{ S. S. W. varying to S. S. E. round by S. l. br. cl.
ing to W. S. br. gulls of	25	—	—	—	—	15	28 2 —		{ S. varying to S. W. little wind, fair
rain	26	—	—	—	—	15	28 1 —		{ S. W. and S. l. br. fair
and N. W. y W. gulls	27	—	—	—	—	16	28 1 —		{ S. and S. S. W. a calm, foggy
W. S. W. rain	28	—	—	—	—	16	28 1 28 1		{ S. and S. W. a calm, fair
and S. S. W. wind, rain	M. 1	—	—	—	—	16	28 1 28 1		{ S. and S. S. W. moderate br. fair
alm. Alter. cl. N. E. and	2	—	—	—	—	16	28 3 28 3		{ S. S. W. a calm, fair
varying to S. S. W. little wind, foggy	3	—	—	—	—	16	28 3 —		{ Ditto
ifts of wind, 70° 11' 15"	4	—	—	—	—	15	— 28 2		{ S. S. W. and S. W. little wind, fair. d. n. 56°
varying to S. S. W. little wind, foggy	5	—	—	—	—	15	28 2 28 1		{ S. S. W. and W. moderate br. fair
and by S. S. W. little wind, foggy	6	—	—	—	—	15	— —		{ S. W. little wind, foggy
ifts of wind, rain	7	—	—	—	—	16	28 1 —		{ S. S. W. and S. W. l. br. fair
and W. S. l. br. cl.	8	—	—	—	—	17	— —		{ Ditto
rying to N. and by W. l. br. cl.	9	—	—	—	—	16	— —		{ S. W. and W. S. W. l. br. foggy
W. S. W. wind, rain	10	—	—	—	—	15	— —		{ Ditto
and W. S. l. br. cl.	11	—	—	—	15 20	15	— —		{ S. S. W. and W. S. W. fair
rying to N. and by W. l. br. cl.	12	—	—	—	—	15	— —		{ S. and S. S. W. little wind, cl.
W. S. W. wind, rain	13	—	—	—	—	15	— —		{ Ditto
gulls of w. foggy	14	—	—	—	—	15	28 1 28 1		{ N. and N. N. E. little wind, foggy
and W. N. E. wind, rain	15	—	—	—	—	14	— —		{ N. and N. N. E. little wind, hazy
and W. S. l. br. cl.	16	—	—	—	—	14	— —		{ N. and N. W. moderate br. rain
s of wind,	17	—	—	—	—	14	— —		{ S. and S. S. E. little wind, foggy
W. fr. br. ra. and W. N. E. wind, rain	18	36	38 75 58	— —	15 20 15	28 2 28 2			{ S. W. and S. S. E. a calm, cl.
and by W. l. br. rather	19	35	29 77 9	— —	15 13 15	28 1 28 3			{ W. S. W. varying to S. S. E. l. br. cl.
W. l. br. 62° 10'	20	33	40 79 19	79 6 —	14 0 15	28 3 28 4			{ S. W. and S. S. W. fr. br. hazy
and W. N. E. wind, rain	21	32	33 81 39	81 42 —	— —	16	28 5 28 5		{ S. varying to S. S. E. fr. br. cl.
r. mid	22	31	29 83 52	— —	— —	17	28 5 28 4		{ S. and S. E. fr. br. cl.

March and April, 1786.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 18.	West Long. by the Lift. of the No. from the Sun.	Variation of the Needle East.	Ther. Inter. observ- ed at noon.	Barometer of Nairne, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
M 23	30 31	86 8	85 45	85 32	10 49	17	28 4 28 3	{ S. varying to E. S. E. mod. br. hazy
24	29 48	87 56	87 28	87 8	9 33	18	28 3 28 2	Ditto, rather foggy
25	29 12	89 50	89 1	88 54	9 22	18	28 3 28 3	{ E. S. E. and S. E. moderate br. cl.
26	28 35	91 33	90 37	90 24	7 55	18	28 4 28 4	Ditto
27	27 53	94 5	92 52	—	7 56	18	28 5 28 5	{ S. E. and E. l. br. fair E. and E. S. E. fr. br.
28	27 33	96 41	95 13	—	7 52	19	28 5 28 4	{ gusts of wind, rain
29	27 17	98 47	97 5	—	7 56	19	28 4 28 4	Ditto, cl.
30	27 9	100 37	99 1	—	7 14	19	28 4 28 3	Ditto. <i>d. n.</i> 52° 56' 15"
31	26 59	102 44	101 1	—	7 11	19	28 4 28 4	{ S. E. and S. S. E. l. br. fair. <i>d. n.</i> 53°
A. 1	27 6	104 49	103 3	—	7 57	20	28 4 28 4	{ E. S. E. mod. br. cl. E. S. E. and E. N.
2	27 7	107 15	105 14	—	5 28	20	28 5 28 4	{ E. irregular gusts of wind, hazy
3	27 7	109 23	107 19	107 8	—	21	28 5 28 4	{ E. varying to N. E. mod. br. cl.
4	27 11	111 14	109 0	—	5 9	21	28 3 28 2	{ N. E. and N. N. W. round by N. l. br. r.
5	27 4	111 45	109 20	—	—	21	28 2 28 2	{ N. N. W. and N. W. little wind, cl.
6	27 3	111 54	109 12	—	—	22	28 1 28 1	{ N. N. W. and W. N. W. fr. br. cl.
7	26 57	112 36	—	—	—	21	28 2 28 2	{ W. N. W. varying to E. S. E. round by S. little wind, rain. <i>d.</i>
8	27 8	113 40	111 1	—	—	21	28 1 27 11	{ <i>n.</i> 52° 7' 30" S. E. varying to N. E. round by E. l. br. cl. rain
9	27 10	114 25	111 55	—	—	21	28 1 28 1	{ N. E. varying to S. E. round by E. lit- tle wind, cl.
10	27 9	—	—	—	—	21	—	{ S. E. and E. S. E. moderate br. fair
11	26 26	111 58	—	—	3 54	20	28 4 28 3	{ S. S. E. and S. E. little wind, fair
12	25 5	111 56	111 54	—	4 0	20	— 28 4	{ S. and S. E. l. br. cl. S. E. and S. S. E. l.
13	23 19	111 48	111 54	—	4 2	20	28 4 28 3	{ br. fair. <i>d. n.</i> 54° 3' 45"
14	21 50	111 37	111 57	—	4 0	21	28 3 28 3	{ S. E. and S. S. E. l. br. fair
15	20 39	111 31	112 2	—	4 39	21	— 28 3	S. E. and E. cl.
16	19 5	111 40	112 15	—	4 38	21	28 4 28 3	{ E. and E. N. E. gusts of wind, cl.
17	17 33	112 4	112 54	—	4 19	22	28 4 28 3	{ N. E. and E. N. E. mod. br. hazy
18	16 3	112 22	113 9	—	4 10	21	28 3 28 2	{ E. N. E. and N. E. l. br. cl.
19	14 12	112 27	113 19	—	4 8	22	28 3 28 1	{ N. E. and E. mode- rate br. hazy
20	12 14	112 34	113 31	113 9	4 19	22	28 2 28 2	{ E. N. E. and E. S. E. moderate br. cl.

April and May, 1786.	South Latitude.	Computed Longitude West.	D. M.	D. M.
1	10 11	112 3	10 11	112 3
2	8 23	112 5	8 23	112 5
3	6 41	113 1	6 41	113 1
4	5 29	113 4	5 29	113 4
5	4 20	114 2	4 20	114 2
6	3 20	115 1	3 20	115 1
7	2 15	115 4	2 15	115 4
8	1 1	116 2	1 1	116 2
9	North.			
10	0 12	116 4	0 12	116 4
11	1 37	117 1	1 37	117 1
12	2 55	118	2 55	118
13	4 3	118 4	4 3	118 4
14	5 10	119 1	5 10	119 1
15	6 46	119 2	6 46	119 2
16	8 10	119 3	8 10	119 3
17	9 4	120 2	9 4	120 2
18	10 17	121	10 17	121
19	11 25	121 4	11 25	121 4
20	12 44	122 5	12 44	122 5
21	13 51	124	13 51	124
22	14 32	125 1	14 32	125 1
23	15 46	126 1	15 46	126 1
24	16 28	127 3	16 28	127 3
25	17 9	128 5	17 9	128 5
26	18 14	130 2	18 14	130 2
27	19 49	131 5	19 49	131 5
28	20 1	133 2	20 1	133 2
29	21 0	135	21 0	135
30	22 137		22 137	
31	23 59	138 5	23 59	138 5
32	24 55	140 2	24 55	140 2
33	25 5	142 2	25 5	142 2
34	26 4	144 1	26 4	144 1
35	27 45	146 1	27 45	146 1
36	28 57	148 2	28 57	148 2
37	29 59	150 1	29 59	150 1
38	30 152		30 152	

of the Atmosphere
Remarks.

ing to E. S. E.
br. hazy
her foggy
E. and S. E.
rate br. cl.

E. l. br. fair
E. S. E. fr. br.
of wind, rain

n. 52° 56' 15"
and S. S. E. l.
ir. d. n. 53°
mod. br. cl.
E. and E. N.
regular gusts of
hazy
ying to N. E.
br. cl.
and N. N. W.
by N. l. br. r.
W. and N. W.
wind, cl.
W. and W. N.
r. br. cl.
W. varying to
E. round by S.
wind, rain. d.
n. 7° 30'
varying to N.
und by E. l.
rain
varying to S.
und by E. lit-
nd, cl.
and E. S. E.
rate br. fair
E. and S. E.
wind, fair
E. l. br. cl.
and S. S. E. l.
r. d. n. 54°
r.
and S. S. E. l.
r.
E. cl.
E. N. E. gusts
nd, cl.
and E. N. E.
br. hazy
E. and N. E.
cl.
and E. mode-
r. hazy
and E. S. E.
rate br. cl.

April at 1871.	South Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 18.	West Long. by the Dist. of the Mo. from the Sun.	Variation of the Needle East.	Ther. Inter. observ- ed at noon.	Barometer of Neirne, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. I. P. L.	
11	10 11	112 39	113 51	113 36	3 58	23	28 3 28	2 { E. N. E. and E. S. E. mod. br. cl.
12	8 23	112 58	114 17	113 42	4 6	23	28 2 28	1 { E. and E. S. E. mo- derate br. fair
13	6 41	113 16	114 59	114 31	3 50	24	28 2 28	1 { E. S. E. and S. E. l. br. fair
14	5 29	113 41	115 45	—	3 39	23	28 2 28	2 { S. E. and S. S. E. l. br. fair
15	4 20	114 25	116 54	—	2 54	24	28 3 28	2 { E. S. E. and S. E. do. d. n. 35° 52' 45"
16	3 20	115 10	118 8	—	2 42	24	28 3 28	1 Ditto. d. n. 33° 10'
17	2 15	115 45	118 40	—	2 50	24	28 2 28	2 S. E. and E. S. l. br. cl.
18	1 11	116 22	119 6	—	3 47	24	28 2 28	2 Ditto
North.								
19	0 12	116 47	119 10	—	3 50	23	28 2 28	1 { E. S. E. and S. S. E. do. d. n. 27° 18' 45"
20	1 37	117 18	119 29	—	4 8	23	28 2 28	1 Ditto, fair
21	2 55	118 2	120 18	119 39	4 28	23	28 1 28	1 { S. E. and S. S. E. l. br. cl.
22	4 3	118 43	121 4	121 13	2 47	24	28 1 28	1 Ditto, hazy
23	5 10	119 10	121 33	121 42	2 39	24	28 2 28	1 { E. S. E. and S. E. lit- tle wind, cl.
24	5 46	119 23	121 25	—	3 25	24	28 2 28	1 { S. S. E. and E. S. E. little wind, fair
25	6 10	119 37	—	—	3 40	25	28 2 28	1 { S. E. varying to N. round by E. a calm, hazy
26	7 4	120 21	122 12	122 32	3 14	25	28 2 28	1 { E. and E. N. E. gusts of wind, cl.
27	8 17	121 9	123 21	—	3 49	25	28 2 28	1 { N. E. varying to S. E. round by E. l. br. cl.
28	9 25	121 43	124 11	—	3 30	25	28 2 28	1 { E. and N. E. little wind, cl.
29	10 44	122 53	125 57	—	4 42	23	28 2 28	1 { N. E. and N. N. E. l. br. cl.
30	11 51	124 8	127 24	—	3 57	22	28 2 28	2 Ditto
31	13 32	125 15	128 46	—	—	22	28 2 28	2 Ditto
32	14 46	126 18	130 8	—	3 53	21	28 3 28	2 Ditto, hazy
33	16 28	127 33	131 37	—	—	20	28 3 28	2 Ditto, mod. br.
34	18 9	128 51	133 1	—	—	20	28 3 28	2 { N. E. and E. N. E. br. cl.
35	19 14	130 23	134 46	—	5 51	19	28 3 28	3 Ditto
36	19 49	131 57	136 10	—	8 17	19	28 3 28	3 Ditto
37	20 1	133 23	137 33	—	8 20	19	28 3 28	3 N. E. and E. l. br. hazy
38	20 0	135 9	139 21	—	8 18	19	28 4 28	3 E. and E. N. E. ditto
39	19 20	137 3	141 19	—	8 11	20	28 3 28	3 Ditto, cl.
40	19 59	138 50	142 58	141 50	8 27	20	28 3 28	2 E. and E. N. E. l. br. cl.
41	19 55	140 29	144 49	143 56	—	20	28 3 28	3 Ditto
42	20 5	142 29	146 43	146 19	8 45	20	28 3 28	3 E. l. br. fair
43	20 4	144 16	148 33	148 25	—	20	28 4 28	4 { Ditto, rather cloudy. d. n. 10° 11' 15"
44	20 45	146 16	150 40	—	8 8	20	28 4 28	4 Ditto. d. n. 5½°
45	20 57	148 20	152 52	—	9 33	20	28 4 28	3 Ditto, hazy
46	20 59	150 14	154 49	—	9 27	20	28 4 28	3 { E. and E. N. E. mo- derate br. cl.
47	21 0	152 5	156 37	—	9 28	20	28 3 28	3 Ditto, rain

May, and June, 1786.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 18.	West Long. by the Diff. of the w. from the Sun.	Variation of the Needle East.	Ther. inter- or ob- served at noon	Barometer of Nairne, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere Remarks.
D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	D.	L. P. P. L.	
M28	20 49	153 18	157 44	—	9 25	21	28 3 28 3	E. and E. S. E. l. br. cl.
								E. N. E. and E. S. E.
29	20 33	154 27	158 43	—	—	21	28 3 28 3	l. br. gusts of wind
								rain
30	—	—	—	—	—	21	28 3 28 3	E. N. E. mod. br. fair
31	21 15	159 24	160 7	—	8 32	22	28 4 28 3	E. S. E. and E. N. E.
								little wind, fair
J. 1	22 55	159 59	160 38	160 16	9 34	22	28 5 28 4	E. N. E. and N. E.
								mod. br. cl.
2	24 48	160 1	160 48	160 34	9 27	22	28 6 28 5	E. N. E. and E. mod.
								derate br. gusts of
3	26 29	160 17	161 23	161 22	11 0	24	28 4 28 6	wind, rain
4	28 3	160 30	161 28	161 20	10 57	21	28 3 28 5	E. and E. N. E. l. br. cl.
								N. E. and E. N. E.
5	29 11	160 29	161 33	—	11 30	20	28 3 28 3	l. br. cl.
								E. N. E. varying to
6	30 47	160 5	160 57	—	11 44	20	28 3 28 2	S. E. round by E.
								l. br. fair
7	32 17	159 43	160 16	—	12 8	20	28 3 28 3	E. S. E. varying to
								S. S. W. round by
8	33 55	159 13	160 6	—	12 40	20	28 3 28 3	S. mod. br. cl.
								S. S. W. varying to
9	34 58	158 52	159 13	—	—	19	28 5 28 5	W. l. br. cl. rain
								S. W. and S. S. E.
10	35 47	158 32	—	—	—	19	28 5 28 4	round by S. mod.
								br. foggy
11	36 59	158 13	—	—	—	16	28 4 28 4	S. S. W. varying to
								N. W. round by W.
12	38 1	157 52	158 1	—	—	16	28 4 —	l. br. rain
								N. varying to S. S. E.
13	39 13	157 19	—	—	—	16	28 4 28 4	round by W. little
								wind, foggy
14	41 6	156 18	155 58	—	—	15	28 3 28 2	S. varying to S. W.
								and to E. N. E.
15	43 12	155 13	155 17	—	—	13	28 1 28 1	round by E. l. br.
								foggy
16	45 1	153 25	153 23	—	—	12	28 1 28 1	E. N. E. and S. E.
								varying to S. W.
17	46 46	151 43	151 36	—	—	11	28 1 28 0	round by S. little
								wind, foggy
18	48 22	150 39	150 4	—	—	11	27 10 27 10	S. and S. S. W. l.
								br. foggy
19	50 6	149 34	149 1	—	—	10	27 10 27 10	Ditto
								S. W. and W. S. W.
20	51 53	148 31	147 50	147 50	23 32	9	27 9 27 10	l. br. rain
								W. and N. W. gusts
								of wind, rain
								W. N. W. and W. S.
								W. mod. br. r. cl.
								W. and S. W. mod.
								br. hazy
								W. N. W. and W. S.
								W. l. br. cl.
								S. W. and W. S. W.
								little wind, hazy

June, and July, 1786.	North Latitude.	Computed Longitude West.
D. M. D.		
J. 21	53 20	147
22	55 43	145
23	57 46	143
24	59 23	141
25	59 29	141
26	59 42	141
27	59 19	142
28	59 20	142
29	59 20	141
30	58 54	141
Jy. 1	59 7	140
2	58 38	140
3	58 43	139
4	—	—
5	—	—
6	—	—
7	—	—
8	—	—
9	—	—
10	—	—
11	—	—
12	—	—
13	—	—
14	—	—

Date, and July, 1866.	North Latitude.		Computed Longitude West.		West Long. by the Time Keeper, No. 18.		West Long. by the Diff. of the Mer. from the Sun.		Variation of the Needle Sail.		Ther. Inser. observ- ed at noon.	Barometer of Naime, observe: at 9 in the morn- ing, and 3 in the afternoon.				Winds; State of the Atmosphere; Remarks.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	At 9. P.	L.	At 3. P.	L.	
S. E. l. br. cl. and E. S. E. gusts of wind	21	53	20	147	41	147	5	—	24	58	10	27	11	27	11	W. Varying to S. S. E. round by S. l. br. rather foggy S. S. E. and E. S. E. mod. br. cl. Ditto, hazy E. S. E. and E. N. E. l. br. rain S. and S. W. varying to S. E. round by S. foggy S. E. varying to W. N. W. round by S. little wind, foggy. W. N. W. varying to E. N. E. round by N. little wind, cl. N. and E. N. E. l. br. rain E. varying to S. W. round by S. little wind, cl. rain S. and S. S. W. little wind, rain S. varying to W. S. W. and to W. N. W. little wind, foggy W. S. W. and S. W. little wind, cl. W. and W. N. W. little wind; fair W. N. W. and N. W. l. br. fair W. N. W. and W. mod. br. cl. E. and E. N. E. little wind, foggy N. E. and N. little wind fair N. E. and E. N. E. a calm, foggy S. W. little wind, cl. E. N. E. varying to S. round by E. a calm, foggy N. E. and E. little wind, foggy N. E. and E. N. E. little wind foggy N. E. varying to S. W. round by E. l. br. rather foggy N. E. varying to S. W. round by E. l. br. cl.
mod. br. fair and E. N. E. wind, fair E. and N. E. br. cl. E. and E. mod. br. gusts of rain N. E. l. br. cl. and E. N. E. cl. E. varying to round by E. fair E. varying to W. round by l. br. cl. E. varying to S. br. cl. rain and S. S. E. by S. mod. gy E. varying to round by W. rain ing to S. S. E. by W. little foggy ing to S. W. o E. N. E. by E. l. br. E. and S. E. g to S. W. by S. little foggy S. S. W. l. gy nd W. S. W. rain N. W. gusts d, rain W. and W. S. od. br. r. cl. S. W. mod. zy W. and W. S. br. cl. nd W. S. W. wind, hazy	22	55	43	145	38	145	45	—	23	25	9	28	2	28	2	
	23	57	46	143	55	144	11	—	—	10		28	2	28	2	
	24	59	23	141	57	143	36	—	—	10		27	11	27	11	
	25	59	29	141	22	142	39	—	31	30	11	28	1	28	2	
	26	59	42	141	8	142	43	—	31	24	11	27	10	27	10	
	27	59	19	142	19	142	44	—	31	0	11	27	8	27	8	
	28	59	20	142	36	142	46	—	—	10		27	10	27	10	
	29	59	20	141	59	—	—	—	—	11		27	11	27	11	
	30	58	54	141	37	141	46	140	57	25	30	28	1	28	2	
	31	59	7	140	56	141	26	—	—	10		28	3	28	4	
	2	58	38	140	16	140	16	—	25	38	11	28	2	—	—	
	3	58	43	139	58	139	59	139	55	—	10	27	10	—	—	
	4	—	—	—	—	—	—	—	—	10		—	—	—	—	
	5	—	—	—	—	—	—	—	—	11		—	—	—	—	
	6	—	—	—	—	—	—	—	—	11		—	—	—	—	
	7	—	—	—	—	—	—	—	—	11		—	—	—	—	
	8	—	—	—	—	—	—	—	—	11		—	—	—	—	
	9	—	—	—	—	—	—	—	—	11		—	—	—	—	
	10	—	—	—	—	—	—	—	—	11		—	—	—	—	
	11	—	—	—	—	—	—	—	—	11		—	—	—	—	
	12	—	—	—	—	—	—	—	—	10		—	—	—	—	
	13	—	—	—	—	—	—	—	—	11		—	—	—	—	
	14	—	—	—	—	—	—	27	0	11		—	—	—	—	

July, and August, 1786.	North Latitude.	Computed Longitude West.	West Long. by the Time-keeper, No. 15.	West Long. by the Lift. of the No. from the Sun.	Variation of the Needle 23 R.	Ther. bar. observ. ed at noon.	Barometer of Mairou, observed at 9 in the morning, and 3 in the afternoon.	Winds; State of the Atmosphere; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
J. 15	—	—	—	—	At the Meridian.	11	—	W. varying to N.E. round by N. little wind, hazy
16	—	—	—	—	—	11	—	W. mod. br. cl.
17	—	—	—	—	—	11	—	S.W. varying to W. N.W. round by W. l. br. foggy
18	—	—	—	—	—	11	—	E. and E. N.E. mod. br. cl. rain
19	—	—	—	—	—	10	—	E. N.E. and E.S.E. do.
20	—	—	—	—	46 55	10	—	N. E. varying to S. E. round by E. l. br. rather foggy
21	—	—	—	—	—	10	—	W. N.W. and W. little wind, cl. rain
22	—	—	—	—	—	10	—	W. and W. N. W. mod. br. fair
23	—	—	—	—	45 47	11	—	W. N.W. varying to N. E. round by N. little wind, cl.
24	—	—	—	—	—	10	—	N.W. and S.W. little wind, hazy
25	—	—	—	—	—	10	—	W. S. W. and W. mod. br. fair
26	—	—	—	—	—	10	—	E. S. E. and S. E. mod. br. cl. rain
27	—	—	—	—	—	11	—	E. and E. S. E. very little wind, rain
28	—	—	—	—	—	10	—	N. E. and E. l. br. rain, cl.
29	—	—	—	—	—	9	28 1	Ditto
30	—	—	—	—	26 43	—	—	W. N. W. l. br.
31	—	—	—	—	—	—	—	W. N.W. very little wind, fair
A. 1	58	20	140	0	—	26 50	—	W. N. W. l. br. fair
2	58	19	139	54	—	26 45	—	N. W. and S. S. W. very little wd. fair
3	57	59	139	52	—	26 48	—	W. very little wind, hazy
4	57	45	139	9	—	—	—	E. varying to S. S. W. round by S. very little wind, fair
5	57	17	138	26	—	26 34	—	E. very little wd. foggy
6	57	20	138	20	138 40	25 0	—	W. N. W. very little wind, fair
7	56	30	137	5	137 29	25 7	—	N. W. ditto
8	55	42	136	27	136 48	—	—	W. fair, l. br.
9	54	47	135	49	136 9	—	—	W. fr. br. hazy
10	54	21	135	8	135 43	—	—	W. N.W. fr. br. foggy
11	54	10	135	23	135 49	—	—	N. N. W. l. br. foggy
12	54	2	136	14	—	—	—	Ditto
13	53	59	136	6	—	—	—	S. very little wind, do.
14	53	49	135	41	136 19	—	—	S. and E. S. E. very foggy
15	53	50	135	52	136 8	—	—	E. l. br. hazy
16	53	21	136	32	136 54	—	—	Ditto

August and Sept. 1786.	North Latitude.	Computed Longitude West.
	D. M. D.	
A 17	53	15 136
18	52	34 134
19	52	7 134
20	51	40 133
21	52	2 132
22	52	15 131
23	51	48 132
24	51	2 132
25	49	56 131
26	49	22 130
27	49	1 131
28	48	35 130
29	48	36 129
30	48	31 129
31	48	11 129
S. 1	46	37 128
2	45	55 127
3	45	56 127
4	44	42 128
5	43	1 128
6	41	22 128
7	40	48 128
8	39	51 128
9	38	59 127
10	38	11 124
11	37	1 127
12	37	3 125

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Augut and Sept. 1866.	North Latitude.	Computed Longitude West.	West Long. by the Time Keeper, No. 11.	West Long. by the Sun.	Variation of the Needle East.	Ther. inter. observ- ed at noon.	Barometer of Maine, observed at 9 in the morn- ing, and 3 in the afternoon.	Winds; State of the Atmosphere ; Remarks.
	D. M.	D. M.	D. M.	D. M.	D. M.	D.	P. L. P. L.	
A 17	53	15	136 15	136 41	137 2	23 39	—	{ N.E. very little wind, hazy
18	52	34	134 29	136 46	—	23 16	—	{ N. W. l. br. fair
19	52	7	134 0	134 4	—	22 26	—	{ N.W. and S. W. lit- tle wind, hazy
20	51	40	133 35	133 41	—	21 20	—	{ N.W. and W. l. br. fair
21	52	2	132 50	133 7	—	20 58	—	{ W. and S. S. W. fr. br. fair
22	52	15	131 56	—	—	—	—	{ S. and S. N. fr. br. hazy
23	51	48	132 31	131 53	—	19 30	—	{ S. E. str. br. fair
24	51	2	132 5	131 40	—	21 20	—	{ W. N. W. l. br. foggy
25	49	56	131 9	130 25	—	19 47	—	{ W. N. W. l. br. fair
26	49	22	130 49	129 58	—	19 47	—	{ E. S. E. very little wind foggy
27	49	1	131 10	—	—	20 0 16	28 1 28 1	{ N. varying to E. S. E. and round every point of the compass in whirlwinds, little wind, ft.
28	48	35	130 8	128 58	—	19 12 15	28 3 28 3	{ W. varying to N. E. round by N. l. br. foggy
29	48	36	129 23	127 51	—	— 15	28 2 28 2	{ N. E. varying to W. N. W. round by N. l. br. cl.
30	48	31	129 21	127 54	—	17 28 14	28 2 28 2	{ W. N.W. varying to S. S. E. round by S. l. br. foggy
31	48	11	129 35	127 58	—	17 28 15	28 1 28 1	{ S. and S.W. a calm, cl.
S. 1	46	37	128 23	127 1	127 1	16 55 14	28 2 28 2	{ W. S. W. varying to N. W. irregular gusts of wind
2	45	55	127 55	126 36	126 59	16 35 14	28 4 28 4	{ W. and W. N. W. l. br. fair
3	45	56	127 55	126 38	—	16 20 15	28 4 28 4	{ S. W. varying to S. E. round by S. a calm, fair
4	44	42	128 10	126 58	—	16 14 15	28 4 28 3	{ S. S. W. varying to N. round by W. mod. br. fair
5	43	1	128 9	127 2	—	15 26 14	28 3 28 3	{ N. and N. E. l. br. cl.
6	41	22	128 7	—	—	14	28 3 28 3	{ N. and N.N.W. mo- derate br. foggy
7	40	48	128 22	127 23	—	15 35 14	28 3 28 3	{ Ditto
8	39	51	128 24	127 26	—	14 0 14	28 2 28 1	{ N. N. E. varying to N. W. round by N. l. br. fair
9	38	59	127 55	—	—	15	28 1 28 1	{ N. and N. N. E. light breeze, cl.
10	38	11	124 41	—	—	15	28 1 28 1	{ N. N. W. and W. little wind, foggy
11	37	1	127 8	126 31	—	15	28 1 28 1	{ W. and N.W. l. br. foggy
12	37	3	125 29	125 2	—	15	28 1 28 1	{ N.W. and N. fine br. rather foggy

Sept. and Oct. 1786.	North Latitude.		Computed Longitude West.	West Long. by the Time Keeper, No. 10.	West Long. by the D.R. of the Mss. from the Sun.	Variation of the Needle E. or W.	Ther- mome- ter ob- served at noon.	Barometer of Hairs, observed at 9 in the morn- ing, and 3 in the aft. noon.				Winds; State of the Atmosphere; Remarks.				
	D.	M.	D.	M.	D.	M.	D.	P.	L.	L.	P.					
S. 13	36	39	124	53	124	7	—	11	47	14	18	1	28	0	N. N. W. and N. W. l. br. foggy	
14	36	55	124	46	123	57	124	31	11	39	14	18	1	28	1	N. W. varying to N. N. E. round by N. l. br. hazy
15	—	—	—	—	—	—	—	14	28	1	28	0	—	—	—	W. and W. S. W. little wind, rather foggy.
16	—	—	—	—	—	—	—	14	—	—	—	—	—	—	—	W. S. W. and W. l. br. fair.
17	—	—	—	—	—	—	—	14	—	—	—	—	—	—	—	S. varying to E. S. E. equally w. fair.
18	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	S. E. varying to S. W. round by S. moderate br. fair.
19	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	S. W. and W. S. W. moderate br. cl. rain.
20	—	—	—	—	—	—	—	14	—	—	—	—	—	—	—	N. N. E. varying to the W. N. W. round by N. l. br. fair.
21	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	S. W. and S. E. round by S. mod. br. fair.
22	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	N. W. varying to W. S. W. round by W. l. br. fair.
23	—	—	—	—	—	—	—	15	—	—	—	—	—	—	—	W. S. W. varying to S. E. round by S. little wind, fair.
24	—	—	—	—	—	—	11	57	15	—	28	2	—	—	—	W. varying to E. S. E. round by S. little wind, cl.
25	36	46	124	18	124	0	—	—	15	28	2	28	2	—	—	S. W. varying to W. N. W. round by W. little wind, hazy
26	36	41	124	52	124	13	—	11	46	16	28	2	28	2	—	S. S. W. varying to W. N. W. little wind, cl.
27	35	46	125	42	125	12	—	—	16	28	3	28	3	—	—	W. N. W. and N. N. W. do.
28	34	14	127	7	126	43	—	—	16	28	3	28	3	—	—	N. W. and W. N. W. moderate br. hazy.
29	32	46	128	33	128	37	128	49	11	43	17	28	4	28	3	N. N. W. and N. l. br. foggy.
30	31	2	130	39	130	15	—	—	16	28	4	28	3	—	—	N. and N. N. E. mo- derate br. rather cl.
O. 1	29	31	132	37	—	—	—	—	16	28	3	28	3	—	—	N. and N. N. W. l. br. hazy.
2	28	43	134	7	133	28	134	26	—	16	28	3	28	3	—	N. and N. E. little wind, hazy.
3	28	12	135	33	134	33	—	9	42	17	28	3	28	3	—	N. N. E. l. br. cl.
4	27	56	136	6	135	20	—	9	33	18	28	3	28	3	—	N. E. varying to W. round by N. little wind, hazy.
5	27	32	136	53	136	11	—	9	0	18	28	4	28	3	—	W. S. W. varying to N. N. E. round by N. l. br. cl.

Sept. and Oct. 1786.	North Latitude.		Computed Longitude West.
	D.	M.	D.
6	27	36	137 58
7	27	57	138 58
8	28	6	140 18
9	28	7	141 38
10	28	3	143 20
11	27	59	145 2
12	27	59	145 4
13	27	54	146 6
14	27	49	147 10
15	27	58	148 5
16	28	3	149 2
17	27	53	149 2
18	27	48	149 3
19	28	5	150
20	27	42	150 4
21	27	47	151 1
22	28	9	152
23	28	5	152
24	27	25	154
25	27	32	154
26	27	27	155
27	27	3	156
28	26	59	158
29	27	23	159
30	26	27	159

The Atmosphere, Remarks.	Lat.	North Latitude.	Computed Longitude West.		West Long. by the Time Keeper, No. 16.	West Long. by the Obs. of the M. from the Sun.	Variation of the Needle East.	Ther. inter. observ- ed at noon.	Barometer of Nairne, observed at 9 in the morn- ing, and 3 in the afternoon.				Winds & State of the Atmosphere & Remarks.				
			D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.				
and N.W.	6	27	36	137	58	137	34	—	8	43	18	28	4	28	4	{ N. and E. N. E. lit- tle wind, fair.	
try- ing to N.	7	27	57	138	58	138	25	—	—	18	28	4	28	4	4	{ E. N. E. and E. little wind, cl.	
ound by N.	8	28	6	140	18	139	38	—	—	18	28	5	28	4	4	{ E. and E. S. E. l. br. cl.	
zy	9	28	7	141	38	141	2	—	8	46	19	28	4	28	4	{ E. and E. N. E. little wind, cl.	
W. S. W.	10	28	3	143	20	142	45	—	8	47	19	28	4	28	4	{ E. moderate br. fair.	
nd, rather	11	27	59	145	2	144	19	—	—	19	28	5	28	4	4	{ E. var. to S. W. round by S. little w. fair.	
7. and W.	12	27	59	145	41	145	0	145	35	8	50	20	28	4	28	4	{ W. N. W. var. to S. E. round by N. a calm.
to E. S. E.	13	27	54	146	6	145	27	—	8	45	20	28	5	28	4	4	{ S. E. and E. S. E. l. br.
v. fair.	14	27	49	147	16	146	38	147	11	8	55	20	28	4	28	3	{ Do. cl.
ying to S.	15	27	58	148	52	148	2	148	36	9	1	20	28	3	28	3	{ S. E. and S. S. E. l. br. cl.
nd by S.	16	28	3	149	23	148	36	—	9	32	21	28	4	28	3	3	{ S. E. var. to S. S. W. round by S. a calm, hazy, d. n. 50° 18' 45"
br. fair.	17	27	53	149	28	148	35	—	9	15	22	28	4	28	4	4	{ W. S. W. varying to N. E. round by N. a calm, cl.
W. S. W.	18	27	48	149	37	148	39	—	9	31	22	28	5	28	3	3	{ N. W. varying to S. E. round by W. little wind, cl.
br. cl. rain,	19	28	5	150	9	149	1	—	—	21	28	3	28	2	2	2	{ S. E. var. to S. W. round by S. l. br. cl. d. n. 47° 37' 30"
varying to	20	27	42	150	49	—	—	—	—	20	28	2	28	2	2	2	{ S. W. varying to N. E. round by N. lit- tle wind, ft.
und by W.	21	27	47	151	18	149	55	—	9	38	20	28	4	28	1	1	{ S. S. E. varying to W. S. W. round by S. little wind, rain.
varying to	22	28	9	152	21	150	26	—	—	22	28	2	28	2	2	2	{ S. W. and S. S. W. little wind, rain.
W. little	23	28	5	152	34	150	56	—	—	21	28	3	28	3	3	3	{ W. varying to N. E.
and N.N.	24	27	25	154	27	152	47	—	9	53	20	28	3	28	2	2	{ N. E. varying to W. N. W. round by N. l. br. cl. rain.
W. N. W.	25	27	32	154	47	153	32	—	10	12	20	28	3	28	2	2	{ N. and N. N. E. very little wind, fair. d. n. 47° 10'
or. hazy.	26	27	27	155	38	154	22	155	15	10	40	20	28	3	28	3	{ N. N. W. and N. l. br. fair.
and N. l.	27	27	3	156	33	155	22	—	—	21	28	2	28	2	2	2	{ N. E. and S. S. E. round by E. mod. br. rain.
N. E. little	28	26	59	158	36	157	8	—	10	30	23	28	2	28	1	1	{ E. S. E. and S. S. E. fr. br. cl. irregular gusts of wind.
cl.	29	27	23	159	10	157	43	—	10	51	22	28	1	28	2	2	{ S. S. E. varying to S. S. W. round by S. little wind, ft.
ing to W.	30	26	27	159	8	157	28	158	44	11	4	21	28	2	28	2	{ S. S. W. and W. S. W. l. br. fair.
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Oct. and Nov. 1780.	North Latitude.		Computed Longitude W. E.		West Long. by the Time-keeper, No. 18.		West Long. by the Ref. of the Mo. from the sun.		Variation of the Needle East.		Ther. Inter. observ. ed at noon.	Barometer of Nairne, observed at 9 in the morning, and 3 in the afternoon.				Winds; State of the Atmosphere Remarks.	North Latitude.	D. M. L.
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.			
Q. 21	26	31	159	21	158	1	—	—	—	—	22	18	3	28	2	W. var. to E. S. round by N. little fair. d. n. 43°.	36	33
N. 1	25	45	160	42	159	28	—	10	31	22	28	3	28	2	2	E. and E. S. E. tr. br. E. S. E. and E. N. moderate br. fair	37	44
	24	44	162	38	161	29	—	—	—	23	23	3	28	2	2	Do. cl.	38	20
	24	2	164	30	—	—	—	—	—	23	18	2	28	2	2	E. and E. S. E. gufts of wind, rain	39	39
	23	35	166	0	165	7	—	—	—	23	28	2	28	2	2	E. and E. N. E. l. br. overcast, rain	40	30
	23	33	166	39	165	58	—	—	—	22	23	3	28	2	2	Do. fine br. cl.	41	53
	23	43	167	53	167	13	—	10	29	22	28	2	28	2	2	E. and E. S. E. l. br. fair	42	39
	23	39	168	28	168	16	—	—	—	22	23	2	28	2	1	E. varying to N. N. W. round by N. gufts of wind, rain	43	48
	22	51	169	45	169	33	—	—	—	21	28	1	28	1	1	N. N. E. and N. N. W. fr. br. do.	44	47
	21	37	172	3	172	5	—	—	—	20	28	1	28	1	1	Do. moderate br. cl.	45	3
	21	15	174	12	174	11	—	—	—	20	28	2	28	2	1	N. N. W. var. to W. little wind, hazy	46	3
	21	10	175	24	175	32	176	19	12	20	28	2	28	2	1	W. N. W. varying to S. W. round by W. little wind, cl.	47	3
	21	18	176	3	176	5	176	48	11	20	28	1	27	11	1	S. S. W. varying to W. N. W. round by W. l. br. rain	48	27
	21	13	176	40	176	35	—	12	30	22	28	0	28	0	0	W. and N. W. very little wind, cl.	49	21
	20	54	177	1	176	55	178	36	12	30	28	1	28	1	1	W. and W. N. W. do. fair	50	52
	20	36	177	28	177	20	—	12	42	22	28	2	28	1	1	N. W. varying to N. E. round by N. moderate br. fair	51	0
	20	17	179	37	179	15	—	12	58	21	28	3	28	2	2	N. and N. N. W. moderate br. cl.	52	55
	20	8	178	28	179	2	—	12	0	21	28	3	28	2	2	Do. fair	53	26
	19	57	177	30	178	24	—	11	59	21	28	2	28	2	2	W. N. W. and N. N. W. l. br. rain	54	17
	19	32	176	42	178	0	—	12	6	23	28	2	28	1	1	N. W. varying to N. E. round by N. little wind, cl.	55	44
	19	38	175	40	176	49	—	12	20	23	28	2	28	1	1	N. E. varying to E. S. E. round by S. l. br. fair	56	4
	20	3	174	49	176	0	—	11	39	23	28	2	28	1	1	S. E. varying to W. N. W. gufts of w. rain	57	57
	20	11	174	5	175	7	—	—	—	23	28	2	28	1	1	N. W. and W. N. W. l. br. fair	58	9
	19	30	173	6	174	6	—	12	44	22	28	2	28	2	2	N. W. varying to S. E. round by S. l. br. fair	59	53
	19	46	172	26	173	27	—	12	8	23	28	2	28	1	1	S. S. E. and W. round by S. mod. br. cl. rain	60	45
	20	42	171	38	172	39	—	—	—	24	28	1	28	0	0		61	38

Winds; State of the Atmosphere; Remarks.	North Latitude.		Computed Longitude East.		East Long. by the Time Keeper, No. 10.		Real Long. by the Dist. of the Moon from the Sun.		Variation of the Needle East.		Ther. Inter- or observed at noon.		Barometer of Nairne, observed at 9 in the morning, and 3 in the afternoon.		Winds; State of the Atmosphere; Remarks.	
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	I.	P.	I.	
W. var. to E. S. round by N. little fair. <i>d. n. 43°.</i>	16	33	170	36	171	35	169	57	12	24	23	28	228	2		W. S. W. varying to N. N. E. round by N. l. br. fair
E. and E. S. E. fr. br. E. S. E. and E. N. E. moderate br. fair Do. cl.	17	30	169	6	170	8	168	31	11	40	22	28	228	3		N. and N. E. l. br. cl. E. N. E. and N. E. fine br. cl. rain E. and E. N. E. l. br. fair
E. and E. S. E. gu. of wind, rain E. and. E. N. E. l. br. overcast, rain Do. fine br. cl.	18	20	167	32	168	17	168	17	11	18	22	28	328	3		Ditto
E. and E. S. E. l. br. fair E. varying to N. N. W. round by N. gufts of wind, rain N. N. E. and N. N. W. fr. br. do. Do. moderate br. cl.	19	20	166	0	166	33	—	—	11	29	21	28	328	2		E. varying to W. S. W. round by S. very little wind, fair. S. S. W. and S. W. fine br. gufts of wind S. W. and W. N. W. irregular gufts of w. rain.
N. N. W. var. to W. little wind, hazy W. N. W. varying to S. W. round by W. little wind, cl. S. S. W. varying to W. N. W. round by W. l. br. rain	20	30	164	31	165	0	—	—	11	20	22	28	328	2		N. W. varying to N. E. round by N. gufts of w. mod. br. cl. N. E. and E. N. E. fine br. cl.
W. and N. W. very little wind, cl. W. and W. N. W. do. fair N. W. varying to N. E. round by N. moderate br. fair N. and N. N. W. moderate br. cl. Do. fair	21	53	163	52	164	28	—	—	10	34	23	28	228	1		E. N. E. varying to S. moderate br. cl. S. varying to N. W. round by W. l. br. cl. W. N. W. varying to N. E. l. br. fair
W. N. W. and N. N. W. l. br. rain N. W. varying to N. E. round by N. little wind, cl. N. E. varying to E. S. E. round by S. l. br. fair S. E. varying to W. N. W. gufts of w. rain	21	39	163	17	164	12	—	—	9	38	24	28	228	1		N. E. and E. N. E. fr. br. cl. E. and E. N. E. fine br. fair
N. W. and W. N. W. l. br. fair N. W. varying to S. E. round by S. l. br. fair S. E. and W. round by S. mod. br. cl. rain	20	48	162	49	163	49	—	—	—	23	—	28	228	1		Ditto
	20	47	161	3	161	58	—	—	10	16	21	28	428	3		E. and S. E. fr. br. fair. S. S. E. varying to S. S. W. l. br. cl. rain.
	21	3	158	57	159	57	—	—	10	3	21	28	428	2		W. S. W. varying to N. E. moderate br. gufts of wind, cl. N. E. moderate br. hazy Do. cl. rain
	21	3	157	4	158	9	—	—	8	40	22	28	228	1		E. N. E. and N. E. l. br. cl. E. N. E. varying to W. S. W. round by S. mod. br. hazy
	21	27	156	33	157	38	—	—	8	30	23	28	228	2		S. W. varying to N. N. W. round by W. l. br. fair
	21	21	155	19	156	19	—	—	—	22	—	28	328	2		N. E. and E. N. E. fr. br. cl. E. and E. N. E. fine br. fair
	20	52	153	0	154	6	—	—	7	10	21	28	328	3		Do. Ditto
	21	0	151	3	151	55	—	—	7	30	21	28	328	2		E. and S. E. fr. br. fair. S. S. E. varying to S. S. W. l. br. cl. rain.
	10	55	149	14	150	13	148	47	7	20	22	28	328	2		W. S. W. varying to N. E. moderate br. gufts of wind, cl. N. E. moderate br. hazy
	20	3	147	18	148	24	146	39	7	21	23	28	328	2		Do. cl. rain
	20	26	146	5	147	23	—	—	6	17	24	28	328	2		E. N. E. and N. E. l. br. cl. E. N. E. varying to W. S. W. round by S. mod. br. hazy
	20	17	144	38	145	49	—	—	—	23	—	28	328	2		S. W. varying to N. N. W. round by W. l. br. fair
	19	44	144	21	145	14	—	—	—	23	—	28	328	2		N. W. and N. l. br. fair
	20	4	142	59	143	30	—	—	—	23	—	28	228	1		N. N. W. round by W. l. br. fair
	19	57	141	49	142	24	—	—	3	53	23	28	228	1		N. W. and N. l. br. fair
	20	9	140	39	141	16	—	—	3	30	24	28	228	2		N. N. W. varying to N. E. round by N. l. br. fair
	19	53	140	6	140	45	—	—	3	24	23	28	228	1		
	19	45	138	53	139	24	—	—	3	42	21	28	328	2		
	19	38	137	25	137	55	—	—	1	38	21	28	328	2		

Dec. 1786. and Jan. 1787.	North Latitude.		Computed Longitude East.		East Long. by the Time Keeper, No. 18.		East Long. by the Diff. of the Mo. from the Sun.		Variation of the Needle East.		Ther. Inter. observ- ed at noon.	Barometer of Nairne, observed at 9 in the morn- ing, and 3 in the afternoon.				Winds; State of the Atmosphere Remarks.	
	D.	M.	D.	M.	D.	M.	D.	M.	D.	M.	D.	P.	L.	P.	L.		
	22	20	2	135 58	136	14	—	1	11	21	28	3	—			{ N. E. and E. N. E. fine br. cl.	
	23	20	13	134 23	134	31	—	0	45	22	28	3	28	3		{ E. N. E. and N. E. l. br. cl.	
	24	20	44	131 27	132	14	—	0	42	22	28	3	28	3		{ N. E. and N. N. E. strong br. cl.	
	25	20	35	129 23	130	17	127 28	0	16	22	28	3	28	3		{ N. E. and N. fine br. cl.	
								West.									
	26	20	19	126 30	—	—	—	0	25	20	28	5	28	4		{ N. N. W. and N. N. E. E. very strong br. hazy	
	27	21	11	124 20	125	22	122 58	0	46	19	28	5	28	4		{ N. N. E. and E. de cl. rain	
	28	21	11	122 23	123	7	120 18	0	33	20	28	4	28	3		{ N. E. and E. fine br. cl.	
	29	21	15	121 17	122	8	119 34	0	23	21	28	3	28	2		{ E. and E. S. E. mo- derate br. cl.	
	30	21	16	119 38	120	51	—	—	—	22	28	3	28	2		{ E. S. E. and N. N. E. round by E. fine br. cl.	
	31	22	2	116 56	119	4	—	—	—	20	28	3	28	3		{ N. E. and E. N. E. fr. br. overcast, fine rain	
1787																	
J.	1	22	19	114 13	116	20	—	—	—	18	28	64	28	4		{ N. E. moderate br. mist	
	2	22	9	112 58	114	33	—	—	—	16	28	5	28	5		{ N. E. and E. N. E. fine br. mist	
	3	22	23	112 8	—	—	—	—	—	15	28	5	28	5		{ N. E. varying to N. W. round by N. fine breeze, overcast small rain	
	4	—	—	—	—	—	—	—	—	—	28	6	—			{ N. and N. E. l. br. overcast	

Jan. Feb. March, and April 1787.	North Latitude, observed at noon.	
	D. M.	
	At Macao.	
Jan.	5	—
Feb.	6	—
March	7	—
April	8	—
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	12	18 30
	13	18 13
	14	18 12
	15	18 19
	16	17 59
	17	18 6
	18	18 3
	19	17 41
	20	15 48
	21	14 51
	22	14 33
	23	14 25
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State of the Atmosphere
Remarks.

N. E. and E. N. E.
fine br. cl.
E. N. E. and N. E.
l. br. cl.
N. E. and N. N. E.
strong br. cl.
E. and N. fine br. d.
N. N. W. and N. N. E.
E. very strong br.
hazy
N. N. E. and E. d.
cl. rain
E. and E. fine br. c.
E. and E. S. E. m.
derate br. cl.
E. S. E. and N. N. E.
round by E. fine br. c.
N. E. and E. N. E.
fr. br. overcast, fine
rain
E. moderate br. m.
N. E. and E. N. E.
fine br. mift
N. E. varying to N.
W. round by N.
fine breeze, overcast
small rain
N. and N. E. l. br.
overcast

Jan. Feb. March April May June	North Latitude, observed at noon.	North Latitude, computed at noon.	East Longitude, computed at noon.	Far Long. by the Dif- ference of the Moon from the Sun, reduced at noon.	East Long. by the Time Keeper, No. 18. at noon.	Long. by Time Keep- er, No. 18, at noon, cor- rected by observ. of dist. of M. from Sun, and used in the Chart.
	D. M.	D. M.	D. M.	D. M.	D. M.	M. D.
Jan	At Macao.					
5	—	21 54	111 47			
6	—	22 3	112 34			
7	—	21 54	112 36			
8	—	21 19	112 59	—	113 0	
9	20 53	20 55	113 40	—	113 54	
10	19 59	19 55	115 2	—	114 53	
11	18 53	19 0	115 58	—	115 33	
12	18 30	18 30	116 29	—	116 6	
13	18 13	18 20	117 6	—	116 49	
14	18 12	18 9	117 52	—	117 26	
15	18 19	18 19	118 16	—	117 55	
16	17 59	17 48	118 27	—	118 25	
17	18 6	17 44	118 20	—	118 22	
18	18 3	17 45	118 11	—	118 26	
19	17 41	17 25	117 46	—	118 27	
20	15 48	15 44	117 17	—	117 37	
21	14 51	15 1	117 18	—	117 33	
22	14 33	14 31	117 56	—	117 58	
23	14 25	14 27	118 26			
	At Cavita.					
A	14 29	—	—	Longit. of the Ob- servatory.	118 35	118 35
10	Sailed fro. Cavita.	—	—			
11	15 21	—	117 25	—	117 13	117 12
12	15 44	15 48	117 10	—	117 6	117 6
13	16 16	16 10	116 57	—	116 53	116 52
14	16 53	16 46	117 11	—	117 15	117 14
15	17 6	17 7	117 18	—	117 24	117 22
16	17 32	17 33	117 22	—	117 35	117 33
17	18 13	18 4	117 14	—	117 25	117 22
18	19 32	19 21	117 11	—	117 17	117 14
19	21 0	20 53	118 29	—	117 9	117 6
20	21 28	21 19	117 35	—	117 8	117 5
21	—	21 45	117 20	—	116 54	116 51
22	22 1	22 7	117 10	—	116 46	116 42
23	22 10	22 7	117 36	—	117 13	117 9
24	22 26	22 20	117 48	167 30	117 39	117 34
25	22 51	22 45	116 42	Mean be- tween 20 observa- tions West.	117 33	117 28
26	22 59	23 3	116 17	—	116 18	116 13
27	22 39	22 42	117 23	—	117 44	117 39
28	22 58	22 53	117 13	—	117 37	117 32
29	23 29	23 19	117 18	—	117 40	117 34
30	22 13	22 17	117 19	—	117 51	117 45
M. 1	—	21 47	117 52	—	118 15	118 8
2	21 37	21 37	119 5	—	119 17	119 9
3	21 47	21 49	119 11	—	119 18	119 9
4	—	22 19	119 41	—	119 52	119 41
5	—	22 53	120 12	—	120 27	120 15
6	24 32	23 32	120 21	—	120 39	120 25
7	26 7	25 41	120 38	—	121 19	120 4

All the fol-
lowing
Longitudes
are found-
ed on that
of Cavita,
to which
they have
been re-
duced.

May, and June, 1787.	North Latitude, observed at noon.	North Latitude, computed at noon.	East Longitude, computed at noon.	East Long. by the Li- tunes of the Moon, from the Sun, reduced at noon.	East Long. by the Time Keeper, No. 18, at noon.	Long. by timekeep- er, No. 18, at noon, cor- rected by diff. of N. from Sun, and used in the Chart.
	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.
M. 8	27 8	27 3	120 20	—	121 26	121 09
9	27 44	27 41	119 56	—	121 7	120 49
10	—	28 31	120 0	—	121 15	120 55
11	—	28 53	120 17	—	121 37	121 16
12	—	28 50	120 22	—	121 45	121 23
13	—	29 37	120 28	—	122 0	121 36
14	29 43	29 57	120 17	At the place of anchor.	121 57	121 32
15	—	30 0	120 6	—	121 50	121 23
16	—	30 41	120 4	—	121 52	121 23
17	—	31 14	120 2	—	121 53	121 23
18	31 21	31 38	120 24	—	121 42	121 10
19	31 53	32 1	120 51	—	122 5	121 33
20	32 5	32 12	121 2	Do.	122 24	121 50
21	32 38	32 53	122 48	—	124 4	123 28
22	33 0	33 6	123 25	123 46	124 36	123 59
23	33 41	33 36	124 25	Mean be- tween 66 observa- tions West.	125 42	125 3
24	34 24	34 22	125 11	—	126 59	125 59
25	34 31	34 25	125 29	—	127 5	126 23
26	35 27	35 31	126 21	—	128 3	127 27
27	—	36 18	127 9	—	128 52	128 7
28	36 40	36 36	127 21	—	128 47	128 1
29	37 14	37 8	127 56	—	129 21	128 33
30	38 14	38 9	128 43	—	130 8	129 20
31	38 24	38 25	129 37	—	131 7	130 17
J. 1	38 12	38 13	120 37	—	132 8	131 16
2	37 39	37 43	131 16	—	132 48	131 54
3	37 18	37 26	131 50	—	133 5	132 10
4	—	37 12	132 36	—	133 56	132 58
5	38 7	37 54	133 0	—	134 26	133 27
6	37 44	37 46	133 58	—	135 32	134 31
7	38 33	38 23	133 56	—	135 35	134 32
8	39 26	39 15	132 44	133 40	134 2	132 57
9	—	40 15	131 27	—	133 18	132 11
10	40 58	41 0	130 41	131 13	132 10	131 1
11	41 57	42 7	130 49	131 32	132 33	131 22
12	42 33	42 46	131 20	The first of these 3 re- sults, is bi-	133 5	131 52
13	42 45	42 44	131 48	between, is a mean be-	133 25	132 10
14	43 30	43 31	132 59	tween 38 observa- tions East;	134 41	133 24
15	43 50	43 50	133 32	the second by 40 ob-	135 6	133 47
16	44 34	44 56	133 53	servations East; and the third	135 20	134 0
17	—	44 5	134 6	by 36 ob-	135 33	134 11
18	44 11	44 9	134 28	servations East.	135 58	134 34
19	44 30	44 28	134 35	By a mean between 30 observa- tions West.	136 6	134 40
20	44 44	44 39	134 33	At the place of anchor.	136 17	134 50
21	—	44 50	134 57	—	136 31	135 2
22	44 54	45 4	135 10	—	136 29	134 58
23	45 8	45 8	135 2	—	136 28	134 56
24	—	45 12	134 52	—	136 20	134 46

Jan. July, Aug. 1877.	North Latitude, observed at noon.	North Latitude, computed at noon.	East Longitude, computed at noon.	East Long. by the ti- tances of the Moon from the sun, reduced at noon.	West Long. by the Flow Keeper, No. 18. at noon.	Long. by time keep. No. 18, at noon, cor- rected by observ. of diff. of M. from sun, and used in the Chart.	
	D. M.	D. M.	D. M.	D. M.	D. M.	D. M.	
J. 25	—	—	—	At the place of anchor.	—	—	
26	—	—	134 52	—	—	—	
27	45 11	45 10	135 29	—	136 27	134 47	
28	46 3	46 5	136 46	—	137 40	135 58	
29	—	46 50	138 4	—	138 52	137 9	
30	47 18	47 24	138 17	—	138 58	137 14	
Jy. 1	—	47 42	138 21	—	139 3	137 16	
2	—	47 45	138 24	—	139 11	137 22	
3	—	—	—	—	—	—	
4	—	47 43	138 26	—	139 13	137 21	
5	47 45	47 40	138 33	Do.	139 19	137 25	
6	47 57	47 54	139 27	—	139 40	137 44	
7	48 29	48 33	140 38	139 35 Mean of 96 observations East.	140 55	138 57	
8	48 22	48 18	140 49	139 23 Mean of 96 observations East.	141 15	139 15	
9	—	48 11	140 49	—	141 20	139 18	
10	48 25	48 9	140 57	139 49	141 34	139 30	
11	48 10	48 6	141 22	139 45 The first by observations East; the second by 198 do.	141 56	139 51	
12	47 49	47 48	141 21	At the place of anchor.	152 5	132 49 131 58	At the place of anchor.
13	—	—	141 25	—	—	—	
14	48 13	48 10	140 58	—	141 42	139 31	
15	48 26	48 26	140 32	—	141 20	139 7	
16	48 17	48 17	140 20	—	141 15	139 0	
17	48 18	48 18	140 5	—	141 3	138 46	
18	48 12	48 12	140 5	—	141 7	138 48	
19	—	48 43	141 8	—	142 13	139 52	
20	49 28	—	141 13	139 49	142 23	140 1	
21	49 53	49 59	141 10	—	142 25	140 1	Ditto.
22	50 32	50 34	141 1	At the place of anchor.	142 23	139 56	
23	50 55	51 54	141 2	138 45	142 27	139 59	
24	51 26	51 23	140 49	—	142 7	139 37	
25	—	51 29	139 57	—	141 37	139 5	
26	—	51 40	—	—	141 44	139 11	
27	51 32	—	—	—	141 58	139 22	At 2 P.M. anchor. d in Baie de Cantries.
28	51 26	—	—	At anchor in Baie de Cantries.	141 30	—	
29	At the ob- servatory.	—	—	—	—	—	
30	—	—	—	—	—	—	
32	—	—	—	—	—	—	
A. 1	—	—	—	—	—	—	
2	—	—	—	—	—	—	

August and September, 1797.	North Latitude observed at noon.			North Latitude computed at noon.			East Longitude computed at noon.			East Longitude, by the distances of the moon from the sun, reduced at noon.			East Longitude, by the time keep. No. 18, supposing the Longitude of the bay of Carriac to be 138 0. 45 m. 11 s. and the time lost every day by the time- keep. to be equal to 40 m. 40 s.			
August	D.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.	S.	
3	51	21	15	51	25	24	139	35	50	—	—	—	132	32	54	
4	50	50	20	50	51	57	139	0	15	—	—	—	138	46	24	
5	50	38	8	50	35	8	139	30	16	—	—	—	139	39	3	
6	50	23	6	50	22	23	139	11	20	—	—	—	139	11	44	
7	—	—	—	50	8	21	139	40	59	—	—	—	139	37	—	
8	49	12	48	49	14	45	139	9	48	—	—	—	139	0	49	
9	48	26	21	48	23	54	139	40	24	—	—	—	139	25	38	
										By a mean between 38 distances of the mo. from the sun, east.			139	38	46	
10	46	56	57	46	50	0	139	59	52	—	—	—	139	31	53	
11	45	56	7	46	6	34	140	15	41	—	—	—	139	53	9	
12	—	—	—	45	41	32	140	30	53	—	—	—	140	9	0	
13	45	20	31	45	28	8	140	48	45	—	—	—	140	27	54	
14	45	29	14	45	30	34	141	13	29	—	—	—	141	8	19	
15	46	9	38	46	10	27	142	30	19	—	—	—	142	20	36	
16	—	—	—	46	21	8	143	27	4	—	—	—	143	24	24	
17	46	9	31	46	9	8	143	43	19	—	—	—	143	54	57	
18	45	58	47	46	6	52	144	35	12	—	—	—	144	27	1	
19	46	19	51	46	8	53	145	51	18	—	—	—	145	49	41	
										By a mean between 150 distances of the m. from the sun, west.			145	22	25	
20	—	—	—	46	35	18	147	32	30	—	—	—	147	35	14	
21	47	9	2	47	8	54	148	8	12	—	—	—	148	2	0	
22	47	14	58	47	13	59	147	55	41	—	—	—	147	21	0	
23	47	11	38	47	10	4	148	9	31	—	—	—	147	34	28	
24	47	23	5	47	23	11	149	11	28	—	—	—	148	48	50	
25	—	—	—	47	31	32	149	39	7	—	—	—	149	16	0	
26	—	—	—	47	22	38	149	32	5	—	—	—	149	47	0	
27	47	10	44	47	21	50	149	35	34	—	—	—	149	50	9	
28	—	—	—	47	4	44	149	5	53	—	—	—	149	21	15	
29	—	—	—	46	22	59	149	28	50	—	—	—	149	43	0	
30	45	50	0	46	18	11	150	4	41	—	—	—	150	27	16	
31	—	—	—	46	7	57	151	5	26	—	—	—	151	28	0	
September	1	—	—	46	56	21	152	44	40	—	—	—	153	11	0	
	2	48	29	5	48	29	42	154	39	51	—	—	155	21	22	
											Mean between 224 distances of the mo. from the sun, east.			157	6	44
	3	49	19	31	49	26	8	155	52	7	—	—	156	36	20	
											Mean between 30 distances of the mo. from the sun, east.			157	13	45
	4	—	—	—	50	27	16	155	42	58	—	—	—	157	32	58
	5	50	58	49	51	11	13	156	4	1	—	—	—	157	20	6
	6	52	29	9	52	30	49	156	8	23	—	—	—	—	—	—
	7	52	46	21	52	44	39	155	26	18	—	—	—	—	—	—
	8	—	—	—	At anchor.			At anchor.			—	—	—	—	—	—

N. B. The following Table was addressed, independently of the Journal of the Voyage, by Dagelet to Fleurieu, the Ex-minister of Marine, from whom I received it. Although the explanation of this Table, and particularly that of the Column of Corrections, does not throw all the Light on the Subject that might be desired, I was of opinion the Publication of these Pieces, without alteration, might be useful to Navigators and Astronomers.—*French Editor.*

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East Longitude, by the time-keeper, No. 18, supposing the Longitude of the bay of Cavities to be 138 4.45 m. 11 f. and the time lost every day by the time-keeper, to be equal to 40 m. 40 f.

S.	D.	M.	S.
132	32	54	
138	46	24	
139	39	3	
139	11	44	
139	37		
139	0	49	
139	25	38	

EXPLANATION

OF THE

ANNEXED TABLE OF LONGITUDES,

FROM APRIL 11, TO SEPTEMBER 7, 1787.

THE observations of distances of the moon from the sun, both to the east and west, were very numerous during our navigation in the seas of East Tartary, till our arrival in the bay of Awatscha. By them we were enabled frequently to ascertain the going of the time-keeper, No. 19, by comparing the longitudes obtained by the distances, with those which the time-keeper would have given, on the supposition, that, during this whole navigation, it had preserved the daily motion deduced from the observations made at Cavita.

The first column of longitude presents, each day, the longitude of the ship, reduced to the time of noon, as given by time-keeper, No. 19, according to its daily rate ascertained at Cavita; and by supposing the situation of that port to be 117 deg. 30 min. east of Paris, as deduced from the difference of meridian given by the time-keeper between Macao and Cavita, all the corrections being made. A mean between the results of some observations of distances west, gave the longitude of Cavita in 117 deg. 50 min.; but on reducing the observations made at Macao to this port, Dagelet concluded this result to be too much by from 13 min. to 15 min. 2 sec. He had observed many occultations of small stars by the moon, according to which he proposed to remove any doubts that might remain as to the longitude of Cavita, being certain that he had ascertained the position of those planets in the journals of his observatory at the *Ecole Militaire*.

The column of corrections contains those which each day must be made in the longitude of the time-keeper, No. 19, in order to obtain the true longitude expressed in the last column.

Dagelet does not explain the method he made use of in drawing up the column of corrections, we only know, that, after having computed the gain or loss of the time-keeper in the interval between two series of observations east and west, by comparing his results with the mean result of each series, he deduced the error of the time-keeper at the different periods of the lunar observations; and thence derived by way of interpolation, the corrections for the intermediate days.

139	31	53
139	53	9
140	9	0
140	27	54
141	8	19
142	20	36
143	24	24
143	54	57
144	27	1
145	49	41
147	35	14
148	2	0
147	21	0
147	34	28
148	48	50
149	16	0
149	47	0
149	50	9
149	21	15
149	43	0
150	27	16
151	28	0
153	11	0
155	21	22
156	36	20
157	32	58
157	20	6
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April, May, and June, 1787.				Latitude.			Longitude by the Time Keeper, No. 10. Cavita being 117 deg. 30 min. East of Paris.			Corrections.			True Longitude.		
				D.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.	S.
April	11	15	18	8	117	37	36	—	26	31	118	4	7		
	12	15	45	0	116	59	30	—	29	16	117	28	46		
	13	16	11	53	117	23	15	—	31	44	117	54	59		
	14	16	46	33	117	21	30	—	33	55	117	55	25		
	15	17	3	4	117	39	45	—	35	48	118	15	33		
	16	17	30	49	—	—	—	—	37	15	—	—	—		
	17	18	9	52	117	24	7	—	38	35	118	2	42		
	18	19	30	54	117	18	15	—	39	38	117	57	53		
	19	20	57	49	117	39	30	—	40	24	118	19	54		
	20	21	25	13	117	0	0	—	40	55	117	40	55		
	21	21	39	Comp.	—	—	—	—	41	10	—	—	—		
	22	22	3	31	116	55	45	—	41	9	117	36	54		
May	23	22	1	36	117	41	30	—	40	51	118	22	21		
	24	22	23	45	117	41	30	—	40	13	118	21	43		
	25	22	49	38	116	41	15	—	39	49	117	21	4		
	26	22	55	28	116	17	30	—	38	55	116	56	25		
	27	22	35	1	117	34	15	—	38	0	118	12	15		
	28	22	53	27	117	23	30	—	37	4	118	0	34		
	29	23	24	46	117	17	45	—	36	7	117	53	52		
	30	22	10	18	117	39	15	—	35	9	118	14	24		
	1	21	45	Comp.	—	—	—	—	34	10	—	—	—		
	2	21	38	5	119	8	50	—	33	10	119	42	0		
	3	21	44	51	119	10	7	—	32	9	119	42	16		
	4	22	14	Comp.	—	—	—	—	31	6	—	—	—		
	5	23	4	0	120	6	45	—	30	1	120	36	46		
	6	24	28	50	120	29	15	—	28	55	120	58	10		
	7	26	4	55	121	5	40	—	27	47	121	33	27		
	8	27	10	5	120	56	0	—	26	38	121	22	38		
	9	27	42	13	120	54	45	—	25	28	121	20	13		
	10	28	21	Comp.	—	—	—	—	24	17	—	—	—		
11	—	—	—	—	—	—	—	23	5	—	—	—			
12	—	—	—	—	—	—	—	21	46	—	—	—			
13	29	25	Comp.	121	34	30	—	20	16	121	54	46			
14	29	46	23	121	34	30	—	18	38	121	53	8			
15	30	—	—	—	—	—	—	16	53	—	—	—			
16	—	—	—	—	—	—	—	15	4	—	—	—			
17	31	0	Doubt.	—	—	—	—	13	4	—	—	—			
18	31	14	35	121	22	50	—	10	53	121	33	8			
19	31	45	15	—	—	—	—	8	30	—	—	—			
20	32	9	17	121	57	15	—	5	53	122	3	8			
21	32	33	50	123	30	15	—	3	3	123	33	18			
22	32	56	42	124	3	25	—	0	4	124	3	19			
23	33	41	12	125	6	30	—	2	45	125	3	45			
24	34	22	26	126	11	50	—	5	19	126	6	31			
25	34	28	36	126	28	50	—	7	36	126	21	14			
26	35	28	41	127	14	26	—	9	34	127	4	52			
27	36	33	46	127	54	14	—	11	18	127	42	36			
28	36	39	51	127	50	25	—	12	24	127	38	1			
29	37	9	5	128	35	44	—	13	55	128	25	49			
30	38	9	25	129	24	15	—	14	45	129	9	30			
31	38	22	14	130	23	15	—	15	20	130	7	35			
June	1	38	9	27	131	15	15	—	15	35	130	59	40		
	2	37	37	21	131	52	42	—	15	39	131	37	3		
	3	37	19	3	132	11	30	—	15	37	131	55	53		
	4	—	—	—	—	—	—	—	15	34	—	—	—		
	5	38	6	21	133	18	14	—	15	30	133	2	44		

June and July
1787.

June

July

True Longitude.				June and July, 1787.				Latitude.				Longitude by the Time Keeper, No. 19, Cavita being 117 deg. 30 m. East of Paris.				Corrections.				True Longitude.			
D. M. S.				D. M. S.				D. M. S.				D. M. S.				D. M. S.				D. M. S.			
S.	D.	M.	S.	June	6	37	39	12	134	30	10	—	15	25	133	14	45						
31	118	4	7	7	38	28	24	134	35	30	—	15	19	134	20	11							
16	117	28	46	8	39	16	58	135	11	45	—	15	12	132	56	33							
44	117	54	59	9	—	—	—	—	—	—	—	15	4	—	—	—							
55	117	55	25	10	40	48	35	131	19	56	—	14	55	131	5	1							
48	118	15	33	11	41	54	46	131	35	30	—	15	44	131	20	46							
15	—	—	—	12	42	35	46	132	3	45	—	14	32	131	49	13							
35	118	2	42	13	42	47	4	132	20	30	—	14	19	132	6	11							
38	117	57	53	14	43	53	31	133	36	20	—	14	5	133	22	15							
24	118	19	54	15	43	53	Comp.	—	—	—	—	13	50	—	—	—							
55	117	40	55	16	43	54	20	134	8	15	—	13	34	133	54	41							
10	—	—	—	17	44	20	Comp.	—	—	—	—	13	17	—	—	—							
9	117	36	54	18	44	7	30	—	—	—	—	12	51	—	—	—							
51	118	22	21	19	44	30	0	134	52	30	—	12	13	134	40	17							
13	118	21	43	20	44	43	0	135	1	15	—	11	36	134	49	39							
49	117	21	4	21	—	—	—	—	—	—	—	—	—	—	—	—							
55	116	56	25	22	45	1	5	135	22	30	—	10	45	135	11	45							
0	118	12	15	23	45	9	32	135	5	53	—	10	23	134	55	30							
4	118	0	34	24	45	10	32	134	51	15	—	10	10	134	41	5							
7	117	53	52	25	Latitude of anchorage.				Long. of anchorage.				—	—	—	—	—						
9	118	14	24	26	45	11	16	134	51	15	—	10	1	—	—	—							
10	—	—	—	27	45	11	43	134	54	45	—	10	3	134	44	48							
10	119	42	0	28	46	4	4	136	4	19	—	10	9	135	54	10							
9	119	42	16	29	46	50	18	137	14	23	—	10	19	137	4	4							
6	—	—	—	30	47	19	16	137	12	5	—	10	33	137	1	32							
1	120	36	46	1	47	50	5	137	2	30	—	10	53	136	51	37							
55	120	58	10	2	47	44	—	137	24	0	—	11	18	137	12	42							
47	121	33	27	3	—	—	—	—	—	—	—	11	28	—	—	—							
38	121	22	38	4	—	—	—	—	—	—	—	11	48	—	—	—							
28	121	20	13	5	47	43	12	137	28	0	—	12	8	137	15	52							
17	—	—	—	6	47	57	41	137	59	45	—	12	30	137	45	15							
5	—	—	—	7	48	29	15	138	53	46	—	12	53	138	40	53							
46	—	—	—	8	48	19	51	139	21	0	—	13	18	139	7	42							
16	121	54	46	9	48	16	30	139	34	0	—	13	44	139	20	16							
38	121	53	8	10	48	22	34	139	37	15	—	14	11	139	23	4							
53	—	—	—	11	48	6	2	139	56	0	—	14	39	139	41	21							
4	—	—	—	12	47	53	4	140	0	30	—	15	16	139	45	14							
4	—	—	—	13	47	49	10	140	28	42	—	15	58	140	12	44							
53	121	33	8	14	48	15	30	—	—	—	—	16	39	—	—	—							
30	—	—	—	15	—	—	—	—	—	—	—	17	23	—	—	—							
53	122	3	8	16	—	—	—	—	—	—	—	18	10	—	—	—							
3	123	33	18	17	—	—	—	—	—	—	—	19	13	—	—	—							
4	124	3	19	18	—	—	—	—	—	—	—	20	40	—	—	—							
45	125	3	45	19	—	—	—	—	—	—	—	22	20	—	—	—							
19	126	6	31	20	49	27	40	140	11	48	—	24	14	139	47	34							
36	126	21	14	21	49	50	35	—	—	—	—	26	15	—	—	—							
34	127	4	52	22	50	31	15	140	9	52	—	28	36	139	41	16							
18	127	42	36	23	50	53	26	140	18	—	—	30	56	139	47	4							
24	127	38	1	24	51	26	27	140	10	30	—	33	21	139	37	9							
55	128	25	49	25	51	28	0	139	26	15	—	35	42	138	50	34							
45	129	9	30	26	—	—	—	—	—	—	—	37	43	—	—	—							
20	130	7	35	27	51	29	43	139	43	15	—	39	38	139	5	0							
35	130	59	40	28	—	—	—	—	—	—	—	41	26	—	—	—							
39	131	37	3	29	51	28	30	139	19	17	—	43	13	138	36	4							
37	131	55	53	30	—	—	—	—	—	—	—	—	—	—	—	—							
34	—	—	—	31	—	—	—	—	—	—	—	—	—	—	—	—							
30	133	2	44	—	—	—	—	—	—	—	—	—	—	—	—	—							

August and September, 1787.	Latitude.			Longitude by the Time Keeper, No. 29, Cavita being 157 deg. 30 min. East of Paris.			Corrections.			True Longitude.			
	D.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.	S.	
August	1	—	—	139	20	47	—	48	0	138	32	47	
	2	—	—	—	—	—	—	49	31	—	—	—	
	3	51	20	0	140	18	18	—	51	0	139	27	18
	4	50	40	31	139	28	30	—	52	26	138	36	4
	5	50	38	25	140	22	22	—	53	58	139	28	24
	6	50	20	45	139	58	15	—	55	40	139	2	35
	7	49	—	—	—	—	—	—	57	32	—	—	—
	8	48	14	7	139	49	55	—	59	34	138	50	21
	9	48	25	40	140	13	30	—	61	22	139	12	8
	10	46	46	45	140	27	0	—	63	9	139	23	51
	11	45	57	33	140	42	15	—	63	36	139	38	39
	12	45	56	30	140	42	15	—	64	47	139	37	28
	13	45	20	12	141	27	37	—	65	38	140	21	59
	14	45	29	4	142	7	20	—	66	25	141	0	55
	15	46	9	55	143	24	7	—	66	59	142	17	8
	16	—	—	—	—	—	—	—	67	20	—	—	—
	17	46	9	0	145	1	15	—	67	33	143	53	42
	18	45	55	47	145	22	47	—	67	34	144	15	13
	19	46	20	27	146	54	45	—	67	23	145	47	22
	20	46	29	30	148	48	57	—	66	59	147	41	58
	21	47	8	20	149	33	37	—	66	37	148	27	0
	22	47	16	22	—	—	—	—	66	26	—	—	—
	23	47	11	39	148	50	22	—	66	26	147	43	56
	24	47	22	9	149	53	30	—	66	40	148	46	50
	25	—	—	—	—	—	—	—	67	13	—	—	—
	26	—	—	—	—	—	—	—	68	11	—	—	—
	27	47	12	32	150	53	25	—	68	56	149	44	29
	28	47	7	0	150	36	—	—	69	42	149	26	18
	29	—	—	—	—	—	—	—	70	38	—	—	—
	30	45	55	13	152	6	10	—	71	28	150	54	42
	31	—	—	—	—	—	—	—	72	20	—	—	—
September	1	—	—	—	—	—	—	73	14	—	—	—	
	2	48	25	0	156	33	30	—	74	11	155	19	19
	3	49	19	30	157	56	0	—	75	10	156	40	50
	4	—	—	—	—	—	—	—	76	13	—	—	—
	5	50	57	30	158	48	7	—	77	12	157	30	55
	6	52	28	59	158	46	15	—	78	12	157	28	3
	7	52	48	20	158	9	10	—	79	11	156	49	59

ERRATUM.

In Abbreviations to the Tables for "*declination*" read "*dip*."

True Longitude.			
S.	D.	M.	S.
0	138	32	47
1			
0	139	27	18
6	138	36	4
8	139	28	24
0	139	2	35
2			
4	138	50	21
2	139	12	8
9	139	23	51
6	139	38	39
7	139	37	28
8	140	21	59
5	141	0	55
9	142	17	8
0			
3	143	53	42
4	144	15	13
3	145	47	22
9	147	41	58
7	148	27	0
6			
6	147	43	56
0	148	46	50
3			
1			
6	149	44	29
2	149	26	18
8			
8	150	54	42
0			
4			
1	155	19	19
0	156	40	50
3			
2	157	30	55
2	157	28	3
1	156	49	59

"dip."

SUBSTANCE



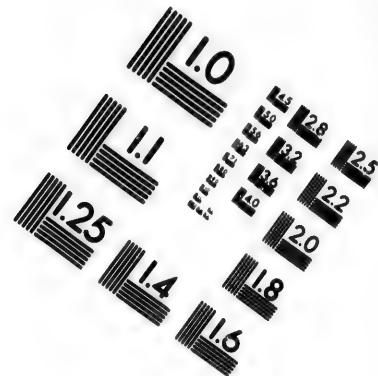
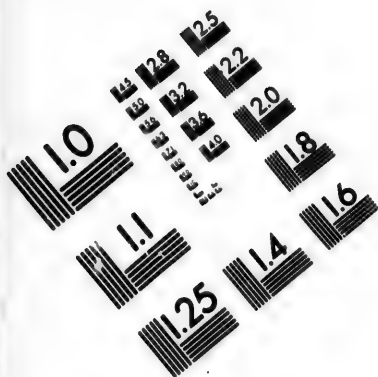
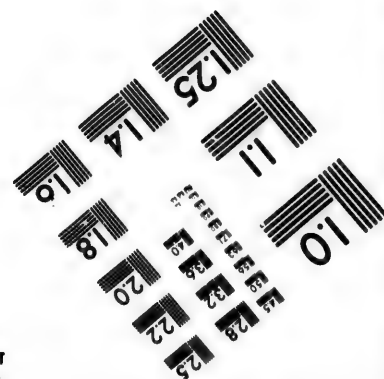
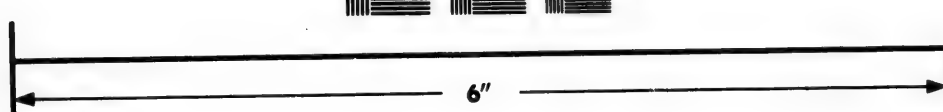
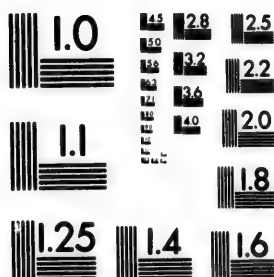


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THE
SUBSTANCE OF THE
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WITH THE DISPATCHES OF

La Pérouse, in the Years 1787 and 1788,

By M. de Lesseps.

TRANSLATED FROM THE FRENCH.

THE two French frigates, the *Astrolabe* and the *Bouffole*; having arrived at the port of Saint Peter and Saint Paul, in the Bay of Avatscha, on the 6th of September, 1787, it appeared desirable to Count de la Pérouse, Commander in Chief of the expedition, for the reasons assigned in the Voyage, to send his dispatches over land to Paris. With this charge he entrusted M. de Lesseps, Consul of France, who had accompanied him two years, and who was particularly fitted for the undertaking, from his knowledge of the language of Russia. On the 29th, therefore, of the same month, M. de Lesseps quitted the *Astrolabe*, and having received the dispatches and instructions of the Count de la Pérouse, took leave of him and his colleague, the Viscount de Langle, in the evening, and was conducted to the house of Colonel Kasloff-Ongrenin, Governor-General of Okotsk and Kamtschatka, to whom the Count had strongly recommended him.

On the morning of the 30th, the frigates left the bay with a fair wind, and were presently out of sight. M. Kasloff had promised to accompany M. de Lesseps as far as Okotsk, the residence of the Governor, whither he was under the necessity of going immediately. A few days, however, which the necessary arrangements and preparations for their departure re-

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quired, gave M. de Lesseps an opportunity of making some remarks upon what he saw, and of noticing, in particular, the bay of Avatscha, with the port of Saint Peter and Saint Paul.

The bay, since the time of Captain Cook, by whom it was then accurately described, has undergone some alterations; and from the great and useful talents of M. Kasloff, farther improvements are expected, especially with regard to the port of Saint Peter and Saint Paul, which will render it completely, what indeed former navigators have already adjudged it, the most commodious and safest port in that part of Asia. The number of houses here at this time did not exceed five or six, inhabited by the Governor, whose name was Khabaroff, and with whom M. Kasloff resided, the serjeant and corporal of the garrison, which consisted of forty soldiers or cossacs, and a building which served as a magazine. But the plan of M. Kasloff extends to the building a town, which may become the general commercial depôt of the country; and which is like to be the case, when the advantages of this port over all others are considered, where the navigation has been held so dangerous, that, by an express edict of the Empress, it was entirely prohibited after the 26th of September. The village, situated on the narrow projection of land at the entrance of the port, comprized thirty or forty habitations, some of them used in Summer, others in winter; and the inhabitants, men, women, and children, including those belonging to the garrison, did not exceed one hundred.

Lofty mountains, some covered with snow, and others that have volcanos, render the banks of Avatscha Bay difficult of access. The vallies are extremely fertile, abounding with grass of an astonishing height, intermixed with a variety of flowers, that throw around a charming fragrantcy. Spring and Autumn are in general rainy, and in Autumn and Winter

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Winter blasts of wind are frequent. The Winter is sometimes rainy, but though long, M. de Lesséps did not perceive its rigour so excessive as it has been represented. Snow falls from October till April or May. The Summer is tolerably fine, with but little thunder, and that never injurious.

Two rivers empty themselves into the bay, the Avatscha, from which the bay is named, and the Paratounka. They abound with fish, and every species of wild fowl, but after the 26th of November the ice effectually closes them up, as it commonly does in January the port of Saint Peter and Saint Paul.

On the 7th of October, M. de Lesséps quitted this port, in company with Messrs. Kasloff; Schmaleff, Inspector-General for the Kamtschadales; Vorkhoff, Secretary to the Governor; Ivafschkin, an unfortunate exile, of whom great mention has been made; and four serjeants, with the same number of soldiers, who formed the Governor's suite. The commanding officer of the fort also attending, the whole party embarked in baidars, *i. e.* boats, in order to cross the bay to Paratounka, and there be supplied with horses.

The ostrog, a village of Paratounka, whither they arrived in five or six hours, is situated by the side of the river of that name, about two leagues from its mouth. It is not more populous than that of Saint Peter and St. Paul, owing, perhaps, to the ravages made by the small-pox; and contains neatly the same number of balagans and isbas, or summer and winter houses, as Petroparlofska. Here was a church, built of wood, and ornamented like those in the Russian villages, with a resident priest or rector, who received M. de Lesséps and his company into his house, and treated them with great hospitality.

The balagan, or summer house, is only one apartment, raised upon posts about twelve or thirteen feet

from the ground, forming a rough sort of colonade, with a floor or platform of rafters joined to each other, and overspread with clay, and a conical roof, covered with a kind of thatch or dried grass. An opening in the roof lets out the smoke when a fire is necessary, and in this one apartment they cook, eat, drink, and sleep. The entrance is by a tree raised from the ground to the floor, upon which steps are rudely cut; and when these steps are turned inwards, it denotes that no one is at home.

The principal food of the Kamtschadales and of their dogs, is dried fish, which is hung up under the colonade of the balagan, out of the reach of the dogs, the most vicious of which are tied to the posts. The dogs are used to draw their sledges, a description of which will be given. The iiba, or winter house, consists of two rooms, with a stove so fixed as to warm both. In the larger rooms are benches covered with bear's skin, which makes a bed for the chief of the family; besides this, there is a table, and a number of images of Saints. The panes of the windows, which are small, are made either of the skins of salmon, the bladders of various animals, or the gullets of sea-wolves; and sometimes, among the richer people, of the leaves of talc, which is more transparent than any other material. These winter houses have no colonade or portico, but have their sides raised from the ground, by laying trees one upon another, and filling the interstices with clay; the roof slants, and is thatched.

Every ostrog, or village, is governed by a magistrate, called Toyon, who is chosen by a majority from among the natives, though the election must be approved by the jurisdiction of the province; under him is an assistant of his own appointment, called Yesaoul; and upon any complaint against these magistrates, they are dismissed by superior tribunals, and others recommended to be elected in their stead.

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On the 9th, M. de Lesseps, with his fellow-travelers, continued their journey on horseback, and in six or seven hours arrived at Koriaki, which, from Paratounka is from thirty-eight to forty wersts*. The greater part of the baggage was conveyed by water, Koriaki being situated in a small wood upon the border of the river Avatscha. Here they passed the night, and the next day set forward towards Natchikin, resolving to stay a few days in the neighbourhood, for the sake of some warm medicinal springs, the virtues of which had been ascertained by the ingenuity of M. Kasloff, and whose goodness had prompted him to build commodious bathing-rooms for the benefit of the Kamtschadales. Passing over a little mountain, they at length had to ford a river called the Bolchaia-reka, or large river, before they could reach the village Natchikin, which stood on the opposite side, and was found to contain six or seven and twenty houses, like those that have been described. Hence they hastened immediately to the baths, which were distant two wersts; and having caused huts to be raised to sleep in, resolved to devote some little time for the purpose of minutely investigating the properties of the water. After passing several days in this enquiry with great satisfaction, the 17th was fixed for the prosecution of their journey; and as this was to be by water to Apatchin and Bolcheretsk, ten boats or canoes, all the country afforded, were procured, of which, by lashing two and two together, rafts were formed for the conveyance of themselves, and as much of their baggage as they could lay on them; but some of it they were obliged to leave behind. In this manner they proceeded down the Bolchaia-reka, with the help of four Kamtschadales, who sometimes pushed on the rafts with long poles, and at others got into the water and

* About eighteen or twenty miles.

hauled them; the river, in many places, being only one or two feet deep, in some not more than six inches. The navigation, however, being extremely difficult, on account of stones and shoals, and even trees that lay in the way, it was thought imprudent to continue the voyage after day-light; and M. Kasloff having a tent with him, this was pitched on the right-hand bank of the river, at the entrance of a wood, near the place, according to Cook's Voyage, where Captain King and his party halted. Here they passed the night with tolerable comfort, and setting out early the following day, in four hours they reached the small village of Apatchin, where, finding nothing to excite curiosity, they made the best of their way to Bolcheretsk, and arrived there at seven in the evening.

M. de Lesséps was, immediately on his landing, conducted to the house of the Governor, who shewed him every civility in his power; but his attention was at once arrested by the news of a galliot from Okotsk having just been wrecked a little distance from Bolcheretsk. One of these galliots, it seems, is dispatched every year, by order of Government, laden with provisions and other articles of merchandize for the use of the peninsula. M. Kasloff, wishing to give every assistance in his power towards saving the galliot, determined on going to the wreck, and invited M. de Lesséps to accompany him. With this view they set out on the morning of the 20th, at eleven o'clock, upon two floats constructed of canoes, and at seven in the evening landed at Tchekaski, a trifling hamlet, where was a building called a magazine, to receive the supplies which are brought from Okotsk. Having slept at this hamlet, the next day they renewed their project; which however, after various attempts, the violence of the hurricanes, and the rapidity and agitation of the river, grown wider and deeper towards its mouth, obliged them to

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abandon; and putting back to Tchekaski, where they passed another night, on the evening of the 22d they arrived again at Bolcheretfk.

There appears to be nothing very remarkable in this town or fort, Krepost, as it is called, of Bolcheretfk, where the population, including men, women, and children, amounts to between two and three hundred, among which is to be reckoned sixty or seventy cossacs or soldiers, who, in addition to their military duty, which is but trifling, are employed in every kind of labour. The rest of the inhabitants are merchants and sailors.

The chief excellence of the people here, who are Russians and cossacs, seems to lie in cheating the credulous Kamtschadales, who for a little brandy are induced to barter at considerable loss. And an instance of one is given, who for a glass of this liquor was prevailed on to part with seven fables of the greatest beauty, which was all he had. The chief part of their trade is furs, among which that of the sable is particularly valuable; but such is their propensity to drunkenness, that frequently the stock of a whole year goes for the indulgence of it. The scarcity of all their wares and provisions makes them extremely dear; brandy is immensely so, especially the French, a vedro of which, a measure containing from fifteen to twenty quarts, sells for eighty roubles, or eighteen pounds sterling; that brought from Okotfk, or which is made from a sweet herb in the country, is sold for half the price.

In living and dress, the people of Bolcheretfk differ little from the Kamtschadales. The exterior part of their dress is the skins of various animals, tanned on one side, under which they wear a short shirt of nankeen or cotton; the women, as a luxury, make this shirt or shift of silk. Both men and women wear boots Summer and Winter, and the men always wear fur caps. The women are clothed like

the Russian women, except those who sometimes adopt the dress of the men. Their food principally is dried fish, fruit, and vegetables; which last it is the business of the women to collect. The most common sort of fish is trout, and salmon of different kinds: the tribe of vegetables is not numerous.

The figure of the Kamtschadale, almost too well known to need description, is short, rather corpulent, a flat nose, black hair, with little or no beard, and a tawny complexion. In their manners, they are simple, mild, and hospitable; given, it cannot be denied, to sloth, drunkenness, and idleness; consequently, they are negligent in point of cleanliness; but possessing a degree of honour and humanity, which the vices of Europeans have not yet obliterated. In some, however, the growing influence of what is called civilization may be perceived. It is only when civilizers are governed by strict religion and prudence that they can be deemed useful.

M. de Lesséps and his companions gave frequent balls to the ladies of Bolcheretsk, who were strongly addicted to pleasure, and the young ones seemed prematurely forward. They possessed a cheerfulness not always kept within the pale of decency, were fond of singing and dancing, and on ball nights their dress was costly and alluring. Their husbands, however, are strangers to jealousy; for which, perhaps, there might be no reasonable foundation.

The dances of the native Kamtschadales are singular, and by no means pleasing; the performance being little more than imitating the various motions, amorous and otherwise, of the different animals in the country, particularly those of the bear, in which they are most savagely accurate.

Their method of taking the bear is sometimes by snares, which are scaffoldings sufficiently raised, and so constructed as to kill the animal by falling on him. Sometimes they are shot; on which occasion

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the huntsman is provided with a carabine, a spear, and a knife; and as he is frequently obliged to lie in ambush several days, he carries a supply of provisions with him. His aim with the carabine seldom misses; but if the bear does not fall, the sportsman then attacks him with his spear, often with great danger, and not unfrequently with the loss of his own life. The rein-deer, argali or wild sheep, foxes, otters, of which there are few, beavers, sables, and hares, are hunted nearly in the same manner. Sometimes, in these excursions, the Kamtschadales suffer extreme hunger, which they eagerly appease on the first victory, by eating the raw flesh of the animal. Their seasons for hunting depend on the time when the fur of the animal is in highest perfection. They have seasons also for fishing. Salmon and trout are caught in June, herrings in May, and the sea-calf at any time but in Winter. They mostly use common nets, made of packthread, or a kind of harpoon, with which they are very dexterous, or baskets placed in the same manner as those for eels are in England.

Horses are not common in Kamtschatka. There were some at Bolcheretsk, under the care of the cossacs, belonging to Government, which were used in Summer for the conveyance of merchandize and other effects of the Crown, and for the use of travellers. To make up for this deficiency, they have dogs, about the size of the English shepherds' dogs, in abundance. They serve for all purposes of draught or carriage, and are fed on offals, without trouble or expence. In Summer, when there is little or no use for them, no care is bestowed on them, and they are suffered to range over the country; but on the approach of Winter, though their labour is then to commence, they voluntarily return to their masters with great punctuality. No individual, Russian or native, has fewer than five of these animals, which accompany

accompany him to the forests to cut wood, and, as occasion serves, draw his effects and provisions, as well as himself. They are harnessed to a sledge two and two, with a single one at the head by way of leader, who is trained for this purpose, and exhibits wonderful docility. The pair is fastened together by couples through the collars, which are frequently covered with bear's-skin.

The form of the sledge is that of an oblong basket, with the extremities elevated in a curve. It is three feet long and about one broad; the body is of thin wood; the sides of open work, ornamented with differently coloured straps. The seat of the driver is covered with bear's-skin, and raised three feet from the ground, upon four legs, which diverge towards the bottom, and are fastened to two parallel planks, three or four inches broad. These planks are not thick, but are longer than the body of the sledge, to which they serve as supports as well as skates. For this purpose they are guarded at bottom, in time of thaw, with three or four pieces of whalebone of the same breadth, and fastened to the skates with thongs of leather. The two ends of the planks in front bend upwards, to join a cross piece of wood, so placed as to hold part of the baggage. The front of the sledge is further ornamented with floating reins, or shreds of leather, which are entirely useless. The conductor holds nothing in his hand but a curved stick, with which he guides and uses as a whip. At one end of this stick are suspended iron rings, which serve to ornament as well as to encourage the dogs by the noise which shaking them makes from time to time. The other end is armed with an iron point, in order to give it more hold on the ice or snow. There is no need of speaking to dogs well trained. It is sufficient to strike the snow with the stick to guide them to the left, or the legs of the sledge to turn them to the right; to stop, it is only to place the

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the stick between the sledge and the snow; if the dogs slacken their pace, or become careless and inattentive to the signals or to the voice, the stick is thrown at them; the recovery of it requires the greatest address, on account of the rapidity, and is one of the principal proofs of skill in the conductor. The Kamtschadales are wonderfully adroit at this exercise. In general, the dexterity with which they managed their sledges was astonishing. It requires no small practice for a stranger to ride in them; and it cost M. de Lesséps many overturns, and many days, before he could habituate himself to the motion, so as to travel with perfect safety. The common way of sitting in a sledge is sideways, like a lady on horseback. You may also sit astride; but the great point, as a grace, is to be able to stand on one leg; and it is worth seeing those that are expert in this attitude. As soon as M. de Lesséps could drive, he would have no other carriage, but frequently took rides in his sledge, and sometimes went hunting; at which sport, when he had learned to walk on the snow as well as to drive, he became very successful. Before the snow is sufficiently frozen, the sledge frequently sinks into it, and then you are obliged to get out and walk; for which purpose, rackets made of thin board, six or eight inches wide, and four feet long, are fastened to the soles of your feet with leather thongs; the front of them turn up like skates, and the bottom is covered with the skin of the sea-wolf, or rein-deer.

The travelling sledge differs from the former, by having a kind of close coach fixed to it. This is a carriage called *verock* in Russia, where it is common. The inside of M. de Lesséps' was lined with bear's skin, and the outside covered with the skin of the sea-wolf.

The diseases found in Kamtschatka by M. de Lesséps were the small-pox, or rather the remains of it,

as it had only made its appearance in the years 1767 and 1768, when it was introduced by a sailor belonging to a Russian vessel bound to the eastern islands. It was then very fatal, and, what is very extraordinary, has not been known since. In the year 1720 it broke out in the northern part of Kamtschatka, but did not reach so far as the peninsula. The venereal disease was there, and though seldom cured, it happily was not common. The scurvy was but seldom seen, but consumptions were frequent; and boils, tumours, abscesses, and wens, were very common. The only cure for these was incision or extirpation, which was performed with a knife, and sometimes a sharp stone. By this we may judge that the art of surgery was not far advanced; the progress of medicine had not been greater. Formerly sorcery prevailed, and empirics, or pretended magicians, called chamans, lived upon the credulity of the innocent Kamtschadales. But the number of victims greatly exceeding that of recovered patients, the imposture was discovered, and the chaman sunk into disrepute and oblivion. It would be well if the English would open their eyes in this respect, nor suffer themselves to be any longer abused by the gross ignorance and impudence of nostrum-mongers, who are shamefully allowed to infest the metropolis, and almost every part of the kingdom. The Kamtschatdales had one general remedy in great repute for almost all diseases, which was a root called bear's-root, steeped in brandy. The bear having been seen to eat and to roll upon this herb when wounded, it was supposed to possess some healing quality, but of this M. de Lesseps had no opportunity of making experiment.

The women of Kamtschatka seldom have more than ten children, and very rarely any after the age of forty. They give suck, in point of time, as whim directs; and there were instances of children being nourished by the breast till they were four or five years

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years old. Hence M. de Lesseps judges of the women's strength of constitution, though neither they nor the men were observed to live longer than the Russians.

The Christian religion had been introduced here by the Russians, but the inhabitants of this peninsula were no otherwise Christians than having been baptized, and were far from fulfilling the duties imposed on them by that sacrament. They seemed, indeed, to be unacquainted with the rudiments of Christianity, but rather followed the impulse of inclination, whether good or bad. Religion appeared only to be thought of from motives of convenience or interest; which defect in point of instruction, M. de Lesseps attributes to the ignorance of the priests, who have no opportunity of profound study; though this, perhaps, may not be thought necessary, as it is not uncommon to see a Kamtschatdale exercising that dignified office. The qualifications of the clergy, therefore, cannot be great, nor their examination for orders severe. They are all under the authority of a high priest, resident at Nijenei, who is himself subordinate to the Archbishop of Irkoutsk, by whom alone ordination is conferred, and from whom every appointment issues.

They reckon eight principal churches in Kamtschatka; Paratounka, Bolcheretsk, Jehinsk, Tiguil, Vercknei, Klutcheftskaia, and two at Nijenei: to these may be added that at Ingiga, in the country of the Koriacs. Seven ostrogs, or villages, with the Kuriles islands, compose the district or parish of Paratounka; the village of this name, Saint Peter and Saint Paul, Koriaki, Natchikin, Apatchin, Malkin, and Bolcheretsk. The number of parishioners contained in these ostrogs does not exceed four hundred; and taking in the Kuriles islands, they compute six hundred and twenty Christians. The Empress allows the curate or rector of Paratounka a salary of eighty roubles, about eighteen pounds sterling, and twenty pounds, equal

equal to thirty-three pounds, of rye flour. He has therefore no tythes, but receives alms, and other emoluments attached to his church, that is to say, surplice fees, which are demanded according to the abilities of the parishioners.

The only impost to which the Kamtschatdales are subject, is an annual tribute paid to Russia in furs. Every head of a family is obliged to furnish for himself, and for each of his children, a certain quantity of skins, equivalent to the amount of his imposition. This method of paying a poll-tax must produce a large revenue to the crown, judging only by the number of fables supplied from this province, which is estimated at more than four thousand. The toyon, or magistrate of each ostrog, gathers the imposts, which he remits immediately to the treasurer of the Crown; first giving to every Kamtschatdale a receipt for the amount of his capitation, who takes care to mark every skin he delivers with a seal, or some other token.

The current coins are a piece of gold called an imperial, worth ten roubles, a rouble, and a half rouble; a very few silver coins of less value, but neither copper nor paper money are known here. You find a great quantity of old silver coins in the time of Peter I. Catherine I. and Elizabeth, of which a branch of commerce might be made, as the silver is purer and more valuable than the common money.

The pay of the soldiers or cossacs is fifteen roubles a year. The officers, on account of their being sent to so distant a country, receive a double pay.

Since the year 1784, when the department of Kamtschatka was re-united to that of Okotsk, the chiefs and officers of the different ostrogs in that peninsula have been under the order of the commandant of Okotsk, and subject to the judicial decisions of that town; all of whom again are subordinate to the governor-general residing at Irkoutsk. The officer commanding

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manding at Bolcheretsk, once the capital of Kamtschatka, was now merely a serjeant, under the appointment of M. Kasloff.

No report was made by the commandants of the different ostrogs, nor by inferior officers to their superiors, whose authority did not extend separately farther than their own peculiar districts; which made it necessary for the Empress to appoint a capitaine-praevost, an inspector-general, whose business it should be to visit the Kamtschadale towns and villages every year, to see that good order and peace was maintained among them; and above all, that the manners and customs of Russia were observed as much as possible. It was in the discharge of this important office that M. Schmaleff had hitherto accompanied M. de Lesseps. The property of the Kamtschadales descends, as in England, to the next heir; that is, in case of testamentary failure, the rights of which are most scrupulously observed. Divorce is not permitted among them. The Russians appear to court their alliance with no other motive than hoping, that by frequent marriages the race of the natives may, before the end of the present generation, be obliterated.

The punishment of death is abolished in Kamtschatka, as in all the dominions belonging to the Empress. Formerly the Russians, accused of harrassing the natives, were condemned to the knowt, a torture now entirely laid aside; and whipping is thought sufficient either for small or capital offences.

M. de Lesseps found great difficulty in pronouncing the Kamtschadale language, which is hard and guttural. There is besides a dialect and accent peculiar to every ostrog, even to those villages nearest each other.

November was now arrived, when the intenseness of the cold, the extreme depth of the snow, and the frequent tempests, or rather hurricanes, which prevail in the months of November, December, and January,

nuary, and which threaten the traveller with the most imminent danger, still kept M. de Lesseps prisoner at Bolcheretsk; impatient as both he and M. Kasloff were to continue their route. But the reflection that it would not only be hazardous, but highly reprehensible to trust such important dispatches as those of M. de Lesseps to the threats of so rigorous a climate, served to pacify him, and inclined him to yield to the intreaties and advice of M. Kasloff and of the officers in his suite. M. Kasloff gave him also a certificate, justifying his abode at Bolcheretsk, by detailing the causes of its necessity. The gales of wind, however, having ceased by the fifteenth of January, they then hastily prepared for their departure, which was fixed for the 27th of that month.

They provided themselves, as well as they were able, with brandy, beef, rye flour and oatmeal. A great number of loaves was made for them, of which a part was kept for the beginning of their journey, and the others were cut into thin slices, and dried in an oven like biscuit. The remainder of the flour was put into sacks as a reserve in case of necessity.

M. Kasloff had ordered as many dogs to be assembled as possible, and they came in troops from the neighbouring villages. The only embarrassment was how to carry provision for them, of which there was abundance. It had been determined to set out at day-break, but the baggage was found so considerable, that, notwithstanding the multitude of hands employed in loading the sledges, it was night before they were announced as ready. No day had ever appeared so long; and so vexed were they at the delay, that they would not wait till the next day, but flew to the sledges, and were out of Bolcheretsk in an instant.

They set off at seven o'clock by moon-light, which was rendered more vivid by the brilliancy of the snow. It was a scene really worth describing. Imagine then an immense cavalcade of thirty-five sledges,

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exclusive of those belonging to the inhabitants of Bolcheretsk, who had undertaken to see them as far as Apatchin. The greater part of these were common sledges, such as have been already described; and some were close carriages, called verocks or kibicks, of which kind M. de Lesseps' was one. In the first rode a serjeant, named Kabechoff, charged with the command and guidance of the procession. On a signal from him, away went the sledges in a line, drawn by about three hundred dogs of equal ardour and speed. M. de Lesseps' verock had thirty-seven dogs, that of M. Kasloff forty-five. But soon the order was interrupted, the line was broken, and became confused. A noble emulation animated the conductors, and the journey resembled a perfect chariot race. It was who could drive fastest; no one would suffer another to get before him, nor would the dogs themselves endure such an affront. They pressed forward with envy, fought for the honour of precedence, the struggle became general, and the sledges were overturned, at the risk of being torn to pieces. The clamours of those who were overturned, the cries of dogs struggling, the yelping of such as kept up the course, and the loud and continued chattering and hallooing of the guides, added still to the disorder, in which it was nearly impossible to know or to understand one another.

In order to enjoy the tumult more at his ease, M. de Lesseps quitted his own sledge, and mounted a common one; in which, besides the pleasure of driving himself, he had that of seeing what passed round him. Fortunately no accident happened to make M. de Lesseps repent his curiosity. This embarrassment had been chiefly occasioned by the concourse of people, whose attachment induced them to accompany the Commandant, as has been observed, to Apatchin, which is forty-four wersts, about twenty miles, from

Bolcheretfk, and whither the whole company arrived about midnight.

A few moments after their arrival a tempestuous wind arose, that would have incommoded them greatly on the road. It continued the remaining part of the night, and all the next day, so as to put them under the necessity of staying at Apatchin.

Here they exchanged the last adieu with the inhabitants of Bolcheretfk, who expressed great regret at parting with M. Kasloff, as well as great concern for the welfare of M. de Lesseps, at which he was the more surprized, thinking he had perceived that impressions had been made on them to the disadvantage of the French nation. These impressions he attributed to the treatment they had experienced from the famous Beniowsky, a reputed Frenchman, who in the year 1769 served in Poland under the colours of the confederates, and became extremely formidable to the Russians as well as to the Polonese. Taken prisoner at length, and banished to Kamtschatka, he found means of raising a troop of exiles, with whom he proceeded to Bolcheretfk, where he is said to have committed several enormities. Of a character so extraordinary, no less than doubtful, it is not possible, in a tract like the present, to give any notion, either with regard to praise or censure. His history is published, and is worth the inspection of the curious, at least in some degree.

The 29th at day-light M. Schmaleff quitted M. de Lesseps, and set off to Tiguil, on the western coast, to complete the visit of his government. He had in view also the procuring provisions for M. de Lesseps and his party, which he sent to them, and some time after rejoined them.

Almost at the same time, M. de Lesseps and M. Kasloff, with a reduced retinue, left Apatchin; and after going along the Bolchaia-reka for several hours,

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sometimes through a forest, and sometimes at the foot of steep and barren mountains, which rise from the banks of that river, they crossed the Bistraia, and about two o'clock arrived at Malkin, sixty-four wersts distant from Apatchin. Here they were obliged to stop to rest the dogs, having no fresh ones. The village of Malkin resembles those already described, containing five or six isbas and about fifteen balagans. It is situated on the border of the Bistraia, and surrounded with high mountains.

The following day they went on to Ganal, not so expeditiously as they had wished. The Bistraia was not entirely frozen, which obliged them to make a circuit through woods, where the snow being of a great depth, and soft, the dogs sunk to their bellies, and were excessively fatigued. They were thus once more constrained to abandon their route, and to return towards the Bistraia, which they regained ten wersts from Ganal, and now found the ice sufficiently thick to afford them an easy passage to that ostrog, which is forty-five wersts from Malkin.

After passing an indifferent night at the house of the toyon, they set forward before day-break for Pousschiné, a distance of ninety wersts, and which they accomplished in fourteen hours; but the latter part of the way was extremely painful; the road was not cleared, and the sledges sunk two or three feet in the snow; this, with the frequency of the jolts, made M. de Lesseps think himself happy in escaping with but one overthrow.

The Kamtschatka runs at the foot of this ostrog of Pousschiné, which is something larger than Ganal. The only thing M. de Lesseps remarked here was, that the isbas, or winter dwellings, had no chimneys, but only a hole in the roof, like the balagans. This aperture is frequently closed by means of a trap, in order to confine the heat; the consequence is, that the smoke spreads round the chamber, and seldom having

having time to escape thoroughly, the whole interior is lined with foot, equally offensive to the sight and smell. This disgust is increased by the exhalation arising from a dismal lamp, which serves to light the whole building, and which is nothing more than a hollow stone, with a piece of linen rolled up for a wick, and filled with the grease of the sea-wolf, or of other animals.

The inhabitants of these wretched hovels are not less disgusting. In one place is a group of women shining with grease, wallowing on the ground on a heap of rags; others suckling their children, which are half naked, and bedaubed with filth from head to foot, or devouring with them scraps of raw fish, and sometimes putrid. Others you see in an undress equally dirty, lying upon bear's-skins, chattering all at once, or perhaps occupied in some household work, waiting the return of their husbands. Happily, the houses of the toyons were made as clean as possible for the reception of M. Kasloff, who had always the kindness of allowing M. de Lesseps to lodge with him.

Very early the first of February, they left Pousschiné, where they had slept, and could travel only thirty four wersts. The farther they went the more they were obstructed by the snow. M. de Lesseps' two conductors had enough to do to keep the sledge upright, and to prevent its getting out of the road. They were also obliged to use great efforts in encouraging the dogs, who often stopped, in spite of the blows bestowed on them with as much profusion as address. These poor animals, whose strength was inconceivable, had all the trouble in the world to disengage themselves from the snow, which covered them as fast as they shook it off. Indeed, both guides and dogs had a most arduous task. The ostrog of Chaiom, the boundary of this day's labour, is situated on the river Kamtchatka. There they passed the night,

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night, and before break of day set out for Vercknei-Kamschatka, which is thirty-five wersts from Chirom, and which they reached in seven hours. Vercknei, compared to the other villages they had seen, was very considerable. It contained above a hundred houses. Its situation was commodious, and the country about it pleasant. The soil was very good, and the inhabitants were beginning to turn it to advantage. Here was a church built of wood, not badly constructed, though the inside did not equal the exterior. A serjeant, who held the command, dwelt in a house belonging to Government.

In this village was also the residence of the unfortunate Ivaschkin, who has already been mentioned as having accompanied M. de Lesseps and his party from Saint Peter and Saint Paul, and who had now only quitted them to advance to Vercknei, where his first care had been to have one of his oxen killed, which he begged them to accept, as a token of gratitude. Upon their arrival, they went to his house, and found him drinking gaily with some of his neighbours. His joy was sincere and open, like that of a man not sensible of past sufferings, nor tired of his present situation. It may not be uninteresting to give some little account of him.

M. Ivaschkin had not attained his twentieth year, when the Empress Elizabeth made him a serjeant of her guard of Préobrajenskoï. He enjoyed already some degree of credit at Court, and the free access which his post gave him to his Sovereign opened a door to his ambition; when all at once, he was not only disgraced, and compelled to abandon the flattering hopes his fancy had suggested, but he had the farther affliction of being treated as one of the greatest criminals: he received the knout, which is the severest and most infamous punishment in Russia; he had his nostrils slit, and was banished for life to Kamschatka.

The extreme rigour of his sufferings for more than twenty years is well known from the reports of the English; and he doubtless would have perished from hunger, misery, or despair, but for the strength of his mind and constitution. The necessity of providing subsistence, forced him involuntarily to become naturalized amongst the Kamtschatdales, and to adopt their manner of living. He was clothed like them, and by hunting and fishing not only abundantly satisfied his own wants, but had a superfluity to sell, sufficient to gain him many comforts. The Russians were ignorant of the cause of so severe a punishment, sometimes attributing it to a misunderstanding, or to some indiscreet words he might have uttered, for they did not know how to impute a crime to him.

It should appear that the pretended enormity of his crime had been forgiven, by its having been proposed to change the place of his exile, and to send him to Yakoutsik, a village that offered more resources of use as well as amusement. But this unhappy man, who was now between sixty and sixty-five years of age, refused to profit by such indulgence, being unwilling, as he said, to make a farther show of the hideous marks of his disgrace, or to blush a second time for the horrid punishment to which he had submitted. He chose rather to continue with the Kamtschadales, having no other desire than to pass his few remaining days in quiet, amongst those who knew his integrity, and where he was able to retain till death that general esteem and friendship which he had hitherto enjoyed with so just a title.

The Count de la Pérouse, from the relation of the English, had a desire to see this unfortunate gentleman; and became inspired, from the first moment, with the most lively interest for him. He received him on board his ship and at his table; nor did the humanity of this commander end with compassionating the misfortunes of M. Ivaschkin; he took every means

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means of assuaging them, by leaving many remembrances of his abode there, such as would prove that the English were not the only strangers who could feel for his unhappy lot.

From Vercknei, where their stay was very short, M. de Lesseps and his companion determined to go on for the night to Milkovaia-Derwna, or the village of Milkoff, which was distant fifteen wersts. On their way, they passed a large field, surrounded with palisades, and farther on, a zaimka, or hamlet, inhabited by cossacs, or Russian soldiers, who were employed in the cultivation of the land on Government account. They had four and twenty horses belonging to the Crown, which served for labour as well as to form a stud established in this place, for the propagation of this useful and scarce animal. About five hundred yards from this hamlet, which was called Tschigatchi, upon an arm of the Kamtschatka, was a mill constructed of wood, but of no size, and now useless, on account of the frost. The soil of the country was good; and the cossacs informed M. de Lesseps, that the last harvest had exceeded their expectation, two pouds of corn having produced ten.

At Milkoff M. de Lesseps was surprized by finding a distinct colony of peasants, which had been selected, in 1743, from among the husbandmen of Russia and Siberia, and had been sent into this country for the purpose of making experiments in agriculture, with the hopes of inducing the natives to turn their minds to the same necessary employment. But the insuperable sloth and indolence inherent in Kamtschatka, entirely frustrated this wise and benevolent intention of Government; and this was the more deplorable, when one could not but perceive the care and diligence of these colonists, apparent in their habitations and cattle, and the air of content that reigned among them. Each man having no more than a capitation to pay, reaped in abundance the fruits of his exertions,

exertions, from a fertile soil and plentiful harvest. Their chief was a Staroste, appointed by administration, and chosen from among the old men of the village. His charge was a general superintendance, to stimulate negligence, and to encourage activity and zeal.

M. de Lesseps being desirous of passing a day with the Baron of Steinheil, formerly inspector-general of Kamtschatka, and who lived at Machoure, left Mil-koff four and twenty hours before M. Kasloff, that he might not delay him; and taking a common sledge, for expedition sake, he passed through the village of Kirgan, and at two in the afternoon entered that of Machoure, thirty-seven wersts farther, not without having suffered severely from the cold, and from the great fatigue of managing the sledge himself. His dress on this occasion merits description, and must be given in his own words.

Usually he wore but one simple parque or frock of deer-skin, and a fur cap, which occasionally covered his ears and a part of his cheeks. When the cold became more piercing, he added two kouklanki, a kind of larger frock, and made of thicker skin. The hair of one of these was inside, of the other outwards. In excessive cold, he put over all these a third kouklanki, thicker still, made of dog-skin, the hairy side of which is always within, and the exterior, or smooth side, painted red. To the front of these kouklankis was fixed a sort of bib to defend the face from the wind. Behind, each of them had a hood, lined with fur, which hung upon his shoulders; or often, all the three, one in another, were drawn over his cap. His neck was guarded by a cravat of sable, or the tail of a fox, called ocheinik, and his chin by a band of sable also, fastened to the top of the head. The forehead, being a part very susceptible of cold, was covered with a fillet of otter-skin or sable, under the cap. His fur breeches made him hotter than all the rest of his dress, complicated as it was. He had double

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gaters of deer-skin, with hair on both sides, called, in Kamtschatka tchigi. His legs were then put into torbassi or boots of deer-skin, furnished inside with soles of tonnchitcha, a very soft herb, or grass, that has the property of retaining heat. In spite of these precautions, after travelling two or three hours, his feet became wet from perspiration, or by the snow's penetrating, so that if he stood still a moment in the sledge, he perceived them frozen. In the evening he exchanged these gaters, or spatterdashes, for a pair of fur stockings, made of deer-skin or argali, calledounti. With all this care, and covering his face besides with a handkerchief, M. de Lesseps' cheeks were frozen in half an hour, so as to drive him to the ordinary method of rubbing them with snow, which, however, did not prevent his feeling exquisite pain for several days.

A few wersts from Kirgan, M. de Lesseps discovered a volcano, which poured out a column of thick smoke, but no flame. He met also, near Machoure, with a wood of fir trees, the first he had seen in Kamtschatka. They were tolerably bushy and straight, but very slender. The whole day of the 4th he passed at Machoure with M. Steinheil, and was joined there in the evening by M. Kasloff.

Before the ravages made by the small-pox, the otrog of Machoure was one of the most considerable in the peninsula, but this had reduced the inhabitants to twenty families.

All the Kamtschadales of this village, men and women, are chamans, or believers in sorcery. Hence they have an utter aversion to the popes, or Russian priests, considering them as persons who meditate nothing but the extinction of idolatry; on which account they regard them as enemies. They offer a secret worship to their god Koutka, and address him intemperately upon every occasion. Before the chace they abstain from wathing, and most cautiously avoid making any sign of the cross, which they suppose would

would be an effectual bar to their taking any thing. Koutka, however, is invoked, and an offering made to him of the first animal that is caught, persuaded that by this act of devotion success is insured. To this deity, their new-born children are consecrated, and are thus destined, from the cradle, to become chamanes. The veneration, indeed, which in this village is held for necromancers, and the extravagancies with which these persons feed the credulity of their countrymen, is not to be conceived. It is true, at present, they do not profess their art openly. Their habits are no longer decorated with mysterious rings, nor other symbolical figures of metal, which stunned one with their jingle upon every motion of the body. They have renounced also a kind of kettle, called *bouben*, and still in use at Yakoutsk, on which they beat in their pretended enchantments, or to announce their arrival. In short all magical instruments are abandoned.

With regard to the ceremonies of their assemblies, which they still hold privately, figure to yourself a circle of spectators, fixed with stupid attention upon the magician or sorcerer, who suddenly begins to sing, or rather to utter piercing notes without measure or signification. At length, the obedient crowd join in the same tone, and form a concert insupportably dissonant. The chaman is gradually animated, and begins to dance to the confused accents of the auditory, who become exhausted by their excessive fervour and admiration; whilst the dance grows more lively, according to the degree of the prophetic spirit with which this minister of the god Koutka pretends to be endued. Now, like the Delphic priestess on the tripod, he rolls his haggard furious eyes; all his motions are convulsed, his mouth is drawn awry, and his limbs stiffen. In short, there is no contortion nor grimace which he does not invent and execute, to the great delight of the by-standers. After playing these

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tricks some time, suddenly he stops, as if inspired; he becomes perfectly calm, and has no longer fury nor transport; it is the solemn recollection of a man, full of the God who directs him, and who is now going to speak by his voice. Surprise and trembling seize the assembly, who are at once silent, in expectation of the wonders about to be revealed to them. At length, incoherent words are heard, at intervals, from the mouth of this self-made prophet, who utters whatever comes into his head, and all which is received as the effect of inspiration. Commonly the orator accompanies his jargon with a flood of tears, or with violent fits of laughter, according to the good or bad tidings he has to announce, whilst the expression of his gestures vary conformably to his sensations.

M. de Lesseps imagines, not without some show of reason, some analogy between the chamans and the sect of Quakers; who, in their conventicles, often exhibit an unmeaning silence, bordering upon stupidity, if not insanity; who have their convulsive starts, and who often utter the wildest absurdities and inconsistencies, to which they do not scruple profanely to affix the name of Divine inspiration. In extenuation, it may be said, no doubt with great truth, that the intention of the latter is strictly moral, as the general regularity of their lives evinces. And it is to be lamented that they do not mingle more apparent reason with their sacred professions.

At Machoure our travellers were confirmed in the truth of a report which M. Kasloff had before received from an engineer, named Bogenoff, who had been sent along the river of Pengina, to make choice of a situation for a town, and to draw the plan of it. He was then to follow the western coast of the Kamtschatka as far as Tiguil, and to make an exact chart of his journey. On his arrival at Kaminoi, a village on the borders of Pengina river, he met with a great number of rebel Koriacs armed, who endeavoured to prevent

prevent the completion of his mission. Reports at Machoure added, that they were six hundred strong, and that probably they would not suffer M. de Lesséps to continue his route. His fears of so unfortunate a delay were, however, soon dissipated by the arrival of an express messenger to M. Kasloff, who had encountered no obstacle, and who assured them every thing was quiet, and that no impediment was to be dreaded. On the 5th, therefore, they quitted Machoure, and travelling sixty-six wersts upon the Kamtschatka, the ice of which was perfectly smooth and solid, they reached Chapina by sun-set, and the next day got to Tolbatchina, a village upon the Kamtschatka, forty-four wersts from Chapina. Upon a heath at some distance from Tolbatchina, they observed three volcanos issuing smoke only.

At this village, M. de Lesséps having a strong desire of visiting Nijenei-Kamtschatka, the capital of the peninsula, quitted M. Kasloff, promising to rejoin him at Yeloski; and travelling all night, arrived at day-break at Kosirefski, a distance of sixty-six wersts. Here he made no stay, but to repair a trifling accident to his sledge, and went on to Ouchkoff; whence, sometimes upon the Kamtschatka, and sometimes traversing extensive heaths, he passed the village of Krestoff; and instead of going to Khartchina, which was M. Kasloff's route to Yeloski, took the road to Kluchefskaia, distant from Krestoff thirty wersts, and got there at the fall of night.

The inhabitants of Kluchefskaia were all Siberian peasants, from the neighbourhood of the Lena, and sent into this country, fifty years back, to cultivate the lands. The number of males did not exceed fifty, the small-pox having been very fatal among them. These labourers did not appear less happy than those near Vercknei-Kamtschatka. Their harvest had been good, and they had several horses, some of which belonged to the Crown. The ostrog is tolerably large,

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large, separated into two parts, at a distance of four hundred yards. It extends from west to east, towards which latter part stands the church, built of wood, in the Russian taste. The houses were, in general, better constructed, and much cleaner than any M. de Lesséps had yet seen, and there were spacious magazines. The Kamtschatka runs at the foot of the village, and in that spot is never entirely frozen. But during Summer, it frequently overflows even into the houses, though they are placed on an eminence.

Four wersts to the eastward of the church is a small hamlet of cossacs, or soldier-labourers, whose harvests belong to Government.

The impatience of M. de Lesséps to see Nijenei, would not suffer him to stay long at Klutchefskaia; and leaving it, therefore, the same evening of the 8th, he passed through Kamini in the middle of the night, and before day-light was at Kamokoff, a distance of forty wersts. Twenty-two more carried him to Tchokofskoi or Tchoka, and by noon he had the satisfaction of entering Nijenei, the appearance of which was neither striking nor agreeable.

It seemed a mere cluster of houses, topped by three steeples, situated upon the border of the Kamtschatka, in a basin formed by a chain of mountains rising round it, but at some distance. All the houses, which were said to be a hundred and fifty, were of wood, small, without taste, and had then the disadvantage of being buried in heaps of snow made by the frequent hurricanes. There were two ill built churches; one in the town, with two steeples; the other within the boundary of the fort, which is nearly in the center of the town, and is a tolerably large square, fenced with palisades. Besides the church, the square encloses the magazines, the arsenal, and guard-house. A sentinel guards the entrance day and night. The house of Major Orleankoff, the commandant, is near the

the fortress, and, in point of size and taste, is no better than any other.

M. de Lesseps met here with another miserable exile, named Snafidoff, who had undergone the same punishment as Ivaschkin, and, like him, had been banished to Kamtschatka since the year 1744.

The moment of M. de Lesseps' arrival, Major Orleankoff sent an officer to wait on him, who was followed by many of the principal officers of the town, each in turn offering him his services. On returning these civilities, he found the Commandant busy in preparing a feast he was to give the next day, on the occasion of a marriage between a Polonese in the Russian service and the niece of the Protopope, or Archbishop.

To this ceremony M. de Lesseps was of course invited, and was particularly struck with the solemnity of it. Distinction of rank was observed with the most scrupulous delicacy, and a certain air of constraint ran through all the compliments and common civilities, that threatened more wearisomeness than pleasantry. The repast was extremely magnificent for the country. Besides other dishes, it consisted of a variety of soups, accompanied with cold meat, of which they eat a great quantity. Roast meat and pastry furnished a second course. But there was more appearance of profusion than of sensuality. The liquors were composed of various indigenous fruits, boiled up and mixed with French brandy: but the brandy of the country, made of the Slatkaia-trava, or sweet herb, was preferred, and frequently handed round. It had an agreeable aromatic flavour, and they were more accustomed to it, as thinking it less unwholesome than that extracted from corn. The guests insensibly fell into good humour. Reason could not long withstand the vapours of so intoxicating a beverage, and soon the grossest jollity prevailed. To
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this noisy and splendid feast succeeded a ball tolerably well regulated. The company was very gay, and danced Russian and Polish dances till the evening. The ball was then followed by an exceedingly pretty fire-work, made by M. Orléankoff, and which he let off himself. It was not considerable, but perfectly satisfactory. The surprise and rapture of the greater part of the spectators, at this part of the entertainment, was inconceivable. They became like statues, fixed with admiration, and screamed in chorus at every explosion. Their regret, when it was over, was as amusing; and they went away lamenting that the pleasures of the day were at an end. The day following M. de Lesséps was invited to the Archbishop's, who gave an entertainment like the past, excepting the fire-work. The Archbishop, whose residence is at Nijenei, was an old man, still brisk enough. A large white beard descended upon his breast, and gave him a truly venerable appearance. His conversation was lively and pleasant, calculated to gain him the respect and affection of his people.

There are two tribunals at Nijenei, to one of which belongs the business of the administration, the other takes cognizance of all mercantile disputes. The presiding magistrate is a sort of Burgo-master, who acts under the orders of the Gorodnitch or Commandant of the town. Both these jurisdictions, it has been observed, are subordinate to the tribunal at Okotsk, and give an account of all their transactions to the Commandant of that town.

A circumstance that particularly interested M. de Lesséps, at Nijenei, was his meeting with nine Japanese, who, during the last summer, had been brought thither from the *Aléutienne* Isles in a Russian ship employed in the trade of otter-skins.

One of these Japanese told him, that he had embarked, with his companions, in a vessel of their own country, for the most southward of the Kurile Islands, with

with a view of trading with the inhabitants. They followed the coast, and were not very far from it, when they were overtaken by a violent gale of wind, which carried them to a great distance, entirely out of their knowledge. According to his account, which M. de Lesseps thought suspicious, they were beating about at sea nearly six months without seeing land. At length the Aléutienne Isles made their appearance; and, in a transport of joy, they resolved to make for them, totally unconscious whither they were going. They accordingly cast anchor near those islands, and a boat conveyed them on shore. They there found Russians, who offered to go with them to assist in unlading the vessel, and to place it in safety. Either from distrust, or really thinking that the next day would be time enough, the Japanese rejected their offer. They soon, however, repented their negligence: that very night the wind became so violent, as to drive the ship ashore. This was not perceived till day-light, when they had great difficulty to save the smallest part of the cargo, and some remains of the vessel, which had been built entirely of cedar. The Russians, who had already received them so kindly, used every means to make them forget their loss. They consoled them to the utmost of their power, and at length prevailed on them to accompany them to Kamtschatka, when they should return thither. The Japanese added, that their number had been much greater, but that many of their companions had fallen victims to the fatigues at sea, and, since that, to the rigour of the climate.

The relater of this little history appeared to have a marked superiority over the other eight. He, as he said, was a merchant, and the others merely sailors under his command. Certain it is, that they showed a singular attachment and respect towards him. If he was sick, or gave any symptoms of uneasiness, they were penetrated with grief; and regularly twice a day, one

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of them was sent to make enquiries after him. His friendship for them was as great; for he never passed a day without visiting them in turn, and taking the greatest care that they should not be in want of any thing. The figure of this man, whose name was Kodail, had nothing remarkable in it. At first he wore his hair like the Chinese, with a single lock on the middle of his head, but he now suffered it to grow generally. Though much affected by the cold, his neck and arms were always uncovered. He was constantly smoking in the Chinese manner, that is, putting not more than a pinch of tobacco into his pipe at a time, and so replenishing it. His penetration and curiosity were equally great. He spoke the Russian language with tolerable ease, was remarkable for sobriety, and, in eating, made use of two little sticks, as is the custom in China.

The gold coin of this country, which he had with him, was of an oval form, and very thin, marked with Japanese characters. The silver money was square, thinner, and lighter than the gold, but was at Japan, he told M. de Lesseps, of superior value. The copper was round, with a square hole pierced through the middle. The lading of his ship had been chiefly cups, plates, boxes, and other articles, highly varnished.

Having passed three days at Nijenei-Kamtschatka, M. de Lesseps set out on the 12th, in order to rejoin M. Kasloff, whom he was sure of finding at Yelofki, as he had business to detain him there some days. From Nijenei M. de Lesseps went twenty-two wersts to Tchoka, thence to Kamikoff, and the next morning to Kaminoi. He then took the road to Kartchina, in which he had to pass three lakes, the last five leagues at least in circumference. There he passed the night, and quitting it at day-break, arrived in the evening at Yelofki, a distance of seventy wersts.

M. Kasloff's employment obliged them to remain

at Yelofki five days longer, and early the 19th they continued their journey. Having gone fifty-four wersts, a horrible tempest, attended by whirlwinds, which raised the snow in clouds, made it impossible for them to proceed. The guides no longer knew their way, so as to keep the road, and proposed conducting them to a wood not far off, which would afford them some kind of shelter. There was no alternative; and waiting till all the sledges were come up, for fear of any being lost or separated, they gained the wood about two hours after mid-day.

The first care of the Kamschadales was to hollow out the snow, which was six feet deep; the others brought wood, and in an instant a fire was kindled, and the kettle set on. A light repast, with some glasses of brandy, soon revived the company. At night, each person was occupied in contriving his bed. M. de Lesséps and M. Kasloff slept in their verocks, the only two carriages of the kind in the party. The rest dug pits or holes in the snow, which they covered with small branches of the trees, and wrapping themselves up in their kouklanki's, with the hood drawn over their heads, went to rest very comfortably. The dogs were unharnessed, and tied to the trees, and passed the night upon the snow as usual.

The wind having greatly fallen, they set out before day, and arrived at Ozernoi, thirty wersts distant, by ten o'clock. At this place the dogs were so excessively fatigued, they stopped that day and night; in hopes too that the wind, which after noon had increased somewhat, would be more subsided.

The ostrog of Ozernoi takes its name from a neighbouring lake. The river Ozernaia runs at the foot of the village, but is not considerable. There they passed the 21st, and the 22d went on to Ouké, twenty-six wersts. One isba was all they found at Ouké, twelve balagans, and two yourts, or subterra-

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neous habitations, in one of which M. de Lesséps and his friend slept, having had it cleaned for that purpose.

Leaving this village at break of day, at some distance they saw a number of balagans, which they were informed were inhabited in the fishing season. They now got near the sea, and kept along the coast for some time; but the wind blew the snow about in such heaps, that they could not see to what distance from the land the sea was frozen, which the inhabitants told them was thirty wersts.

At Khaluli, seventy wersts from Ouké, and a small distance from the sea, they found only two yourtes and twelve or thirteen balagans. They saw also at this place a baidar, or boat, covered with leather; it was from fifteen to eighteen feet long, and four wide. The hull was composed of thin planks, making a sort of cross or arbour work. The timbers were made fast with leather straps, and the whole covered with the skins of the morse and sea-wolf, so that no water could possibly penetrate. Here they staid two nights, and setting out at ten o'clock the morning of the 25th, after travelling some time they regained the sea, and keeping along the eastern coast for some wersts, got to Ivalschin, forty wersts from Khaluli, where they slept, and the next night they reached Drannki. At this village they met a M. Haus, a Russian officer, who came from Tiguel, and brought M. Kasloff several subjects of natural history.

At day-break they left Drannki, and travelling seventy wersts, arrived in the evening at Karagui, which stands high, and commands a view of the sea. The dwellings consisted of three yourtes and a dozen balagans, at the foot of which ran the river Karaga, which empties itself into the sea a few gun-shots from the village. Drannki is the last village in the district of Kamtschatka.

Obliged to wait in this place for some dried fish,

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which was to feed the dogs in the desarts they were now to traverse, M. de Lesseps took the opportunity of revising his notes, and of paying some attention to the yourtes, or caves, none of which he had had an opportunity of examining that were perfect.

This strange habitation is a square excavation, about twelve or fourteen yards in diameter, and eight feet deep, with a top rising above the ground, shaped something like a dome. The four sides are lined with joists or boards, and the interstices filled up with earth, straw, or dried grass, and stones. In the bottom several posts are fixed that support the cross beams upon which the roof rests, which rises four feet from the level of the ground, and is made of the same materials as the sides. Towards the top is a square opening, about four feet long and three wide, which serves as a passage for the smoke, as well as for entrance into the yourte by means of a ladder, or notched piece of timber. It is thought a kind of disgrace to go through a door that is lower down in the side of the yourte. The whole is surrounded by high palisades, which serve as a defence against the wind as well as the drifts of snow. Some say that these enclosures were formerly used by these people as ramparts against their enemies.

You have only to enter one of these savage abodes to wish yourself out again. The sight and smell are equally affected. It is one single room, about ten feet high, surrounded with a kind of bench five feet wide, and raised a foot from the ground, covered with the half-worn skins of different animals, and which is used as a bed for all the inhabitants. The number of these sometimes amounts to twenty persons, men, women, and children, who all eat, drink, and sleep together, without the smallest regard to cleanliness or decency of any kind. They have almost constantly a fire, which is placed either in the middle or at one side of the room. In the evening the coals are raked up in

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a heap, and the opening at the top closed, by which means the heat is concentrated, and preserved all night. By the light of an almost infectious lamp, already described, you may discover in one corner of the apartment, an uncouth image of some saint, shining with grease, and black with smoke. Before these images they bend, and offer up their prayers. The rest of the furniture is trifling, all disgustingly filthy. The remains of dried fish lie here and there, and the women and children are continually broiling pieces of salmon skin, which is a favourite morsel.

The singularity of the children's dress attracted M. de Lessép's attention. It was said to be exactly like that of the Koriacs, and consisted of a deer-skin, fitted so close to every part of the body, that the child appeared to be sewed up in it. There was an opening at the bottom, before and behind, for obvious reasons; and this was covered with a separate piece of skin, which could be fastened or lifted up at pleasure. A handful of moss served for a napkin, and was renewed occasionally. Besides the common sleeves, two others were attached to the garment, in which the child's arms were put when cold; the ends were closed up, and the inside lined with moss. A hood of skin hung on the shoulders of the children in the yourte, where their heads were always kept naked; and for a sash they had a girt of deer-skin. Their mothers carried them upon their backs, by the help of a leather strap, which passed round the woman's forehead, and under the seat of the child.

The toyon of Karagui, with whom M. de Lesséps and M. Kasloff lodged, was an old rebel, brought back to his duty with great difficulty; and he gave them great uneasiness, by absolutely refusing to procure them fish.

The manners of the inhabitants of this village are very like those of the neighbouring Koriacs, of whom there are two forts. Those properly so called, who

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have a fixed residence, and others who are wanderers, known by the denomination of rein-deer Koriacs, and who have numerous flocks, which they maintain by driving them about to those parts abounding with moss. Thus they are constantly travelling, encamping under tents of skin, and subsisting upon the produce of their deer.

Having learnt that two of these hordes of travelling Koriacs were in the neighbourhood, M de Lesseps immediately sent a messenger to enquire if they would sell some of their deer; and they brought two live ones the same day. This succour came very opportunely to quiet the people, who began to be afraid of starving; and the dogs were still in danger, as their provision of fish was not arrived. A deer was killed directly; but when they came to treat about the price, they were greatly embarrassed, as the Koriacs could speak neither Russian nor Kamtschadale; nor could they ever have understood each other, but for a Karagui, who served as interpreter.

The rein-deer of the Koriacs were as serviceable to them for draught as dogs were to the Kamtschadales. The method of harnessing and managing them will be given in its proper place.

The evening of the 29th, a serjeant, whom they had been expecting some days, arrived with provisions; and it was determined to set out the next morning. But they were detained by a violent storm of wind and snow, which lasted till the evening of the following day. In order to divert themselves, therefore, it was proposed to try the talents of a celebrated female dancer, an inhabitant of Karagui, and whose fame had raised their curiosity. They accordingly sent for her; but from caprice, or ill-humour, she refused to dance, or to pay any regard to their invitation. It was in vain to represent to her the respect due to the Commandant. Nothing could persuade her. Fortunately they had brandy at hand, some bumpers of which seemed to change her disposition.

sition. began to voice and her countenance. She presented a note of time with The most contain satisfied the more exact the strange distorted agility, of rage, which mined to strange to more exact woman, have the yourte, keep coming way. that she hang upon self, he on which of breath whilst the continued recover up, and standing test, but interceded self un silenced

sition. At the same time, by desire, a Kamtschadale began to dance before her, and provoke her by his voice and gesture. Her eyes gradually brightened; her countenance became convulsed, and her whole frame shook upon the bench where she was sitting. She presently answered the incitements and the piercing notes of the dancer by similar efforts, keeping time with her head, which turned in every direction. The motions at length became so rapid, that she could contain no longer; but starting up on the ground, defied the man in her turn, by cries and contortions more extravagant than his. It is difficult to express the strangeness of the dance. All her limbs seemed distorted; she moved them with as much strength as agility, carrying her hands to her bosom in a kind of rage, which she uncovered, and seized, as if determined to tear it, as she did her garments. These strange transports were accompanied with postures still more extraordinary. In a word, she was no longer a woman, but a fury. In her blind phrenzy she would have thrown herself upon the fire in the middle of the yourte, if her husband, who had the precaution to keep constantly near her, had not put a bench in the way. When he saw that her head was quite gone, that she rolled from side to side, and was obliged to hang upon her fellow dancer, in order to support herself, he carried her in his arms to the circular bench, on which she fell like a mass without sense, and out of breath. She remained in this state five minutes; whilst the Kamtschadale, elate with his triumph, continued singing and dancing. The woman, a little recovered, heard him; and suddenly raising herself up, and uttering the most inarticulate sounds, notwithstanding her weakness would have renewed the contest, but for her husband, who kept her back, and interceded for her. The victor, however, feeling himself unwearied, continued his alluring grimaces, till silenced by the authority of the company. In spite of

the encomiums bestowed upon the actors, M. de Lesseps thought the scene rather disgusting than otherwise.

Every person in this village, men and women, smoke and chew tobacco; with which, by an unaccountable refinement, they mix ashes, in order, as they said, to make it stronger. Some, to whom snuff was offered, put into their mouths. Their pipes were made like the Chinese, of bone, and very small; they take great care not to emit the smoke, but swallow it with delight.

The toyons, or magistrates of the several villages through which they had passed from Ozernoi, who had accompanied them out of respect to M. Kasloff, took their leave two days after their arrival at Karagui; and they bade adieu in a manner that shewed a strong attachment to the person of the Governor-general. Their kindness was even extended to M. de Lesseps, who could by no means withstand the little presents that were offered him; and which was either the skin of a fable or of a fox, or fruit, or fish, or whatever they judged would be acceptable.

The weather being calm, at one o'clock in the morning of the 2d of March, our travellers left Karagui; and having gone fifty wersts, they stopped at the approach of night, and pitched their tents in the open country. Under M. Kasloff's tent, which was the largest, his verock and that of M. de Lesseps were placed side by side; so that putting their faces close to the windows, which were made of the leaves of talc, they could converse without difficulty. In the intervals between the other sledges, which were ranged two and two round the outside of the tent, under coverings of skins, the guides and the rest of their suite made their beds. Such was the disposition of their halt in that barren spot. Tea and supper were the only meals of the day; and a corporal acted as caterer and cook. The dishes he had to serve up were neither many nor delicate, but his alacrity in preparing them,

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them, and a good appetite, gave them a relish. He commonly produced a soup, composed of a piece of beef or deer, and some of the baked bread, with rice or oatmeal.

Early next morning they continued their journey, but found it impossible to go more than thirty-five wersts. The wind had shifted, and blew the snow with great violence in their faces. The guides suffered exceedingly, but not so much as the dogs, many of whom died in the road, exhausted by fatigue. The others could draw no longer, so weak were they for want of nourishment; having had only a quarter of their usual allowance, on account of the small quantity remaining, which was scarcely enough for two days more. In this extremity they dispatched a soldier to Kaminoi, to procure them a supply, and to send an escort to meet them, which was waiting M. Kalloff's arrival at that village, and consisted of a guard of forty men, who had been sent him from Ingiga, upon the first news of the revolt among the Koriacs.

As they were only fifteen wersts from the village or hamlet of Gavenki, where they had hopes of finding some fish for their dogs; they ventured that evening to give them a double portion, that they might be the better able to continue their journey. And having passed the night in the same manner that they had the former, at three o'clock in the morning they resumed their route, keeping close to the sea-shore till they got to Gavenki, whither they arrived by ten o'clock. Nothing was to be seen here but two yourtes falling to decay, and six ill constructed balagans, built of crooked pieces of wood accidentally thrown up by the sea; for there was not a tree in the place, nor any thing except a few bushes, thinly scattered here and there. It was no wonder they learned that more than twenty inhabitants had not long since voluntarily exiled themselves, in search of a better abode. There were now only five families, including that of
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the toyon, and two Kamtschadales, who had come hither from the isle of Karagui. No reason was assigned for the change, by which it was certain they could not have gained.

They had not been an hour at Gavenki, when a dispute arose between a serjeant belonging to their suite and two countrymen of the village, to whom he applied for wood. They answered sharply, they would not give him any. Both parties grew warm, and the Kamtschadales, not intimidated by the menaces of the serjeant, attacked him with their knives, which were two feet long, fastened to a girdle, and hanging upon their thighs. They were soon disarmed by two of the soldiers; and as soon as the Governor was informed of this act of violence, he ordered that the delinquents should be made an example of. For this purpose they were brought before the yourte, in which were M. Kasloff and M. de Lesséps; and, in order to strike the inhabitants with awe, M. Kasloff attended the punishment. The toyon, who remained with M. de Lesséps, began to murmur at the rigour with which his countrymen were treated; and his family joined him with still louder cries. M. de Lesséps, though alone, endeavoured to calm him; and perceiving that M. Kasloff had forgot his arms, he seized the sabres, upon a motion the toyon made to go out, and followed him instantly. The toyon joined the Governor, and calling upon his neighbours, loudly demanded the release of the prisoners. He urged, that he alone was their judge, and he alone had a right of punishing them. To these seditious clamours M. Kasloff made no reply, but a severe look, which disconcerted the effrontery of the peasants and their chiefs. The toyon uttered more words, but they seized him, and compelled him to assist at the punishment which he had attempted to prevent. One of the rebellious was a young man eighteen years of age, the other twenty-eight, or thirty. They were stripped

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and laid upon the ground. Two soldiers held their legs and hands, whilst four others laid on upon their shoulders a plentiful number of stripes, till their backs were covered with blood. At the entreaties of the women, the punishment was abridged; and the young man sent away with an exhortation, to which he was scarcely in a situation to attend, any more than to dream of rebelling a second time.

The severity exercised by M. Kasloff on this occasion was the more necessary, as these people shewed a great deal of the restless disposition of the Koriacs. Instead of supplying the party with provisions, even for the use of the dogs, as the Kamtschadales had hitherto done, they denied having any. But their falsehood was soon detected by the dogs themselves, whose noses directed them to the pits, artfully covered with earth and snow, in which they hid their fish, and for which they weakly attempted to make excuses. Indignation might have led the party to seize the whole, but they contented themselves with a share. It appeared that their fishing consisted of salmon, herrings, cod or stock-fish, of morse, and other amphibious animals.

There is neither spring nor river in the neighbourhood, but a lake only which supplies the inhabitants with water. In winter they break the ice of this lake, and carry home great portions of it, which they keep in a kind of trough suspended in the yourte, at about the height of a man. Here the heat melts it, and to this they have recourse when they are dry. Near the village was a mountain, with some sort of entrenchment, which formerly had served these people for a refuge in their revolts.

M. de Lesseps and his companions staid but twelve or thirteen hours at Gavenki and departed at night for Poutstaretsk, a distance of two hundred werits, which consumed five long days. Never had journey been so painful. At setting out the weather was tolerably

lerably good ; but the second day the snow and wind assailed them with such impetuosity, that the guides were blinded. At four paces they could not distinguish any thing, nor scarcely see the sledge they were immediately following.

To increase their distress, the guide they took at Gavenki was so short-sighted from age, that he frequently led them out of the way, and they were obliged to stop while he found out the vestiges of the road. Many of the dogs died of hunger and fatigue. Of the thirty-seven that drew M. de Lesseps' verock from Bolcheretsk, twenty-three only remained ; and M. Kasloff had also lost many of his. They had neither water nor wood ; they were, therefore, obliged to quench their thirst with snow, and often to go some distance out of the way to break some wood from a miserable shrub, for the purpose of dressing their victuals. To warm themselves was impossible, and they were almost frozen, from the excessive cold and the slowness with which they travelled. The anxiety of M. de Lesseps, on account of his dispatches, added greatly to his distress ; impatient to fulfil his commission, the obstacles he had to surmount, and the doubtfulness of his success, greatly agitated his mind, and almost drove him to despair.

When they left Gavenki, they had quitted the eastern coast, and got within sight of the western two wersts from Poutstaretsk ; so that they had traversed the whole width of that part of Kamtschatka, which is not less than fifty leagues. And this journey the inability of their dogs had obliged them to make more 2-foot than in their sledges, which the guides were sometimes under the necessity of drawing. With this assistance, and enticing the dogs by holding up a handkerchief before them, made into the shape of a fish, they were at length enabled to pass the mountain that led to Poutstaretsk.

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of the month at three o'clock, they thought themselves safe, from the reception of the women, whose husbands were gone to the ostrog of Potkagornoi, in search of whales. They conducted M. de Lefseps and his party to their habitations, singing and dancing round them like mad people. One of them took off her *parque* or frock, and put it on M. Kasloff; others expressed their satisfaction at the unexpected arrival, as they said, of the strangers, by violent fits of laughter.

Their first care was to visit all the reservoirs for fish. How great was their chagrin at finding them all empty! They immediately suspected that the inhabitants had taken the same precaution as had been used at Gavenki, but their searches were useless, and they could not find any.

In this interval the dogs had been unharnessed, in order to be tied up in divisions as usual. But they were no sooner fastened to the posts than the straps and harness were devoured. All attempts at stopping them were vain. The greater part escaped into the country, where they wandered here and there, eating every thing that their teeth could possibly tear to pieces. Some died and became a prey to the rest, every limb of a carcase being contested by a troop of competitors, all of whom attacked it with equal fury. It became absolutely necessary for the people to arm themselves with sticks, or other weapons, to beat off these famished animals. To the horror of beholding them devouring each other in this manner, was added the woeful spectacle of those that encompassed the *yourte* of M. de Lefseps and his company. The skeleton appearance of these poor animals excited compassion, whilst their plaintive and continual cries seemed as reproaches for the want of that succour which it was impossible to afford them. Many suffering from cold as well as hunger, placed themselves close to the aperture in the top of the apartment by which

which the smoke ascended. The more they felt the heat, the nearer they drew; till losing their balance through weakness, they fell down into the fire before their eyes.

Soon after their arrival, the guide returned who had accompanied the soldier sent from Kaminoi on the third, in search of supplies. He informed them that the soldier was himself in the greatest want, was happy in having discovered, twelve wersts to the northward of Pouttaretsk, a wretched abandoned yourte, in which he found shelter from the storms that had bewildered him several times. The provisions that had been given him for himself and his dogs were consumed; and he waited impatiently for some relief, without which he could neither leave his asylum, nor execute the purport of his mission.

M. Kasloff, far from being cast down by this last disappointment, comforted his companions, by imparting the last expedient he had resolved to adopt. On information of a whale's having been driven ashore near Potkagornoi, he had already dispatched a messenger, who was to bring them, with the utmost expedition, as much of the flesh and fat of that fish as he could obtain. This resource still being uncertain, M. Kasloff proposed, that each should make a sacrifice of the provisions he had reserved for his own dogs, and give them up to Serjeant Kabechoff, who had offered to go to Kaminoi. In their present distress, the least glimmer of hope sufficed to decide them; and they embraced the offer with transport, relying upon the zeal and ability of the serjeant.

He went away the 10th, amply furnished with instructions, and carrying with him the remainder of their provisions. In his route he was to pick up the poor soldier, and then hasten to fulfil the commission, which he had not been able to effect. After having taken these measures, they exhorted one another to patience, and endeavoured to dissipate their solicitude,

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till it should please Providence to deliver them. M. de Lesseps employed this time in looking round Poust-taretk.

This hamlet is situated on the slope of a mountain, washed by the sea. Though the people of the country call it Poustai-reka, the Desart River. But it is, in fact, only a narrow gulf, that advances to the foot of the mountain. The water was salt, and not drinkable, so that they were even here obliged to quench their thirst with snow. Two yourtes, containing fifteen persons, composed the whole hamlet. A few balagans for summer habitations were at some distance from the yourtes, higher up in the country.

They passed the summer in fishing, and in making provision for winter. But fish could not be plentiful, as their food, during M. de Lesseps' abode there, was the flesh and fat of the whale, the crude bark of trees, with the buds soaked in the oil of the whale or of the sea wolf, or in the grease of other animals. They said they caught small cod sometimes at sea, and M. de Lesseps had no doubt of their being really as poor as they appeared to be.

Their method of hunting the rein deer, of which there are great numbers, is easy and sure. They surround a certain space of ground with palisades, leaving some narrow passages open, in which they spread nets or snares. They then separate, in order to drive the deer into these snares, where they are caught by the neck or the horns. A great number always escape, by breaking the nets or leaping the palisades; but twenty or thirty men will frequently in one chase take more than sixty deer.

Besides their household employments, it is the women's business to prepare the skins of the different animals, particularly of the deer, by staining and sewing them. They first scrape them with a sharp stone fixed in a stick. And having taken off the fat, they continue to scrape them till they become thinner and supple.

ple. The only colour they dye them is a deep red, which they do from the bark of the alder tree, called in Russia *olkhovaia-déréva*. They boil this bark, and then rub the skin with it till it is impregnated with the dye. The knives with which they afterwards cut the skins, are crooked, and probably of their own invention.

The sinews of the deer, finely separated, and prepared by these women, serve them for thread. They sew perfectly well. Their needles come from *Okotsk*, and are nothing extraordinary. The thimble, which resembles a taylor's, is worn upon the fore finger.

The manner of smoking, by putting a pinch of tobacco in the pipe at a time, and replenishing it, has already been mentioned; but the terrible consequences which M. de Lesseps often witnessed, was not noticed. By swallowing the smoke, instead of emitting it, they by degrees become so intoxicated as to fall into the fire, if they were near it. Happily custom has taught them to mark the progress of this fainting fit; and they have the precaution to sit down, or to lean against the first thing they meet with. The swoon lasts at least a quarter of an hour, during which time they suffer exceedingly. A cold sweat bedews their body; the salver runs from their mouths; they breathe with difficulty, and cough incessantly. This state they reckon the chief delight in smoking.

Neither men nor women wear shirts or shifts. Their common cloathing is something in the form of one, but shorter, and made of deer skin. When they go out, they put a warmer garment over it; and in winter the women wear fur breeches instead of petticoats.

On the 12th M. Schmaleff rejoined them, and relieved them from a great anxiety on his account. He had been absent six weeks, and near a month had elapsed beyond the time fixed for his coming up to them. The provisions he brought were very scanty, but his dogs were rather in better order than theirs, which

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of which they took the advantage, by sending them for some of the sledges that had been unavoidably left on the road.

Letters from Kaminoi brought them no comfort; Kabechoff informing them that no assistance was to be expected thence. The detachment from Ingiga could not reach them; it had been waiting two months at Kaminoi, and they not only had consumed their own provisions, but those also that were destined for M. Kasloff and his party. Their dogs, like ours, had devoured one another; and the forty men were reduced to the greatest extremity. The serjeant added, that he had sent immediately to Ingiga as the last resource. His express could not return for some days, but he was fearful the answer would be unsatisfactory, as that town could not be very well provided with dogs or food, after the considerable supply it had already furnished. This afflicting report took away all hope, and entirely damped the pleasure M. Kasloff would otherwise have received, in having advice by the same courier of his promotion from Okotsk to the Government of Yakoutsk.

In this critical moment, M. de Lesseps suddenly formed the scheme of separating himself from M. Kasloff. His zeal to fulfil his commission prompted him to find out some method of continuing his journey. Of the three hundred dogs with which they had set out from Bolcheretsk, twenty-seven only remained that were at all capable of work, and with these it was impossible for them both to travel. After much deliberation therefore, it was agreed that the dogs should be given up to M. de Lesseps, in order that he might proceed. The only remaining difficulty was, how they were to be fed. When the express arrived from Potlagornoi, with a large quantity of the flesh and fat of the whale. No difficulty seemed now in the way, and the 18th was fixed for M. de Lesseps' departure.

Fortune once more flattered him with hopes of succeeding;

ceeding; and with the bad news from Kaminoi, he also learned that quiet was re-established among the Koriacs; as a proof of which, many of them had been desirous of accompanying the soldier charged with the letters to M. Kasloff; and even the son of the rebel Chief, whose name was Eitel, was at the head of the escort. He told them that his countrymen had long expected them with impatience, and that his father intended to shew his respect for the Governor, by coming to meet him.

Charmed at having nothing to fear, at least from this quarter, they expressed their satisfaction to the Koriacs for their good-will, by making them presents of tobacco, and stuffs, and other articles, which M. de Lesseps had purchased during his voyage, or which the Count de la Pérouse had left him. But the principal care, in order to secure a favourable report of their reception, was to make them drunk; and this, as meeting their taste, was considered as the greatest politeness.

M. de Lesseps proposed that the Koriacs should take charge of his portmanteaus. To this they at first objected, on account of the distance, which was to Ingiga. But entreaties and money prevailed on them to take them into their sledges; and thus he had nothing to think of but his dispatches; as the soldier sent from Ingiga would return thither, and promised to see his wishes faithfully complied with.

The 18th of March at length arrived; when the parting between M. de Lesseps and M. Kasloff will naturally be supposed affectionate and distressing. M. de Lesseps left Poustaretzk at nine o'clock in the morning, on an open sledge, drawn by seven dogs, which he conducted himself. He had a soldier, as an escort, on a sledge with eight dogs, and an inhabitant of the hamlet as a guide, who carried the remainder of the baggage and the provisions on a sledge drawn by twelve dogs. M. de Lesseps was also accompanied

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by M. Schmaleff, and the inferior officers of his suite, who, however, parted from him after some days.

From Poutstaretsk they immediately descended upon the gulf, where they travelled with tolerable ease, and in a few hours arrived at the mouth. Here the way became more difficult. Obligated to go on the sea, near the shore, the heaps of ice greatly impeded them, and were very dangerous. The sledges were frequently overturned, and scarcely a person in the company escaped without injury.

Towards night-fall they arrived at a hamlet on the sea-coast, where were two yourtes, and three balagans in a miserable condition, wholly abandoned. The only man who had inhabited the yourte into which they entered, and who, M. de Lesseps learned from one of his attendants, was a chaman or forcerer, had fled at their approach; as all the wandering Koriacs did, to avoid the necessity of succouring them. The coffac who gave M. de Lesseps this information, had been sent forward by M. Schmaleff the day before their departure from Poutstaretsk, with orders to stop at this hamlet, and search for concealed fish; which precaution proved very useful to them; for on their arrival, the coffac conducted them to a cave he had discovered full of fish, of which M. de Lesseps took a good share, having brought with him only two days provision.

Early the 19th they continued their journey, which grew more and more fatiguing. The extreme badness of the road compelled M. de Lesseps to walk till his legs would scarcely support him. An intolerable thirst added to his weariness. Unfortunately he perceived a small rivulet, and was induced to swallow some ice. His thirst was quenched, but the heat he had felt was presently succeeded by a shivering fit, and a severe paroxysm of fever obliged him to halt in the midst of the desert. They were happy enough to find wood sufficient to make tea; and after drink-

ing a few cups of this, M. de Lesseps laid down in a tent he had with him, well covered with furs, in hopes of raising a perspiration. This he could not effect, and passed a most uncomfortable night. He determined, however, to make an attempt at proceeding the next day, when the unavoidable exertion of driving, though extremely painful at first, soon excited perspiration. This he persevered in encouraging, till by the evening his fever had subsided, though he felt the effect of his indiscretion some time.

The weather was now very fine; and M. de Lesseps received inexpressible satisfaction from meeting three convoys with provision, and a hundred and fifty dogs in good order, sent by Serjeant Kabechoff to M. Kasloff. The soldier who conducted the convoys told him also, that Prince Eitel, or the Chief of the Koriaks of Kaminoi, who had been accused of rebellion, was on his way to undeceive the Governor.

After climbing some steep mountains, they came down upon a river called the Talofka, which was joined by a smaller river towards the sea. The banks of both were well wooded. This river they quitted some distance from Kaminoi. They then had a vast heath of broom to traverse, then a considerable lake; and, at length, they quitted the Pengina near its mouth, in a direction from south-east to north-west. The breadth of this river was striking; and the prodigious heaps of ice with which it was covered, would have made it appear pleasantly picturesque, if they had not had the fatigue and danger of frequently helping the dogs and the sledges from one heap to the other.

On the 24th they entered Kaminoi about noon, and were kindly received by the inhabitants. In the absence of Eitel, another Prince, whose name was Eila, held the command. He met them at the head of a Russian detachment; and they were conducted to the yourte of Eitel, which had been long cleaned and prepared against the arrival of M. Kasloff.

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Prince Eila paid them every kind of respect; they had a sentinel constantly at the door, whose business was to keep out suspicious persons. Whatever foundation there might have been for the report of a rebellion among these people, their present behaviour to M. de Lesseps and his companions gave no reason to doubt their peaceable disposition; and the Koriacs and Russians lived together upon the best terms.

M. de Lesseps had not intended to stop at Kaminoi longer than to rest his dogs: but in the night of the 24th and 25th the weather changed, and the blasts of wind threatened an approaching tempest. The fear of meeting this in the open country made him defer his departure.

The ostrog or village of Kaminoi, distant from Poutstaretsk three hundred wersts, is situated on an eminence, upon the borders of the sea, at the mouth of the river Pengina. It comprises a great number of balangans and a dozen yourtes, all very large and formed like those already described. The palisades surrounding them are fortified with lances, bows and arrows, and fusils, and are thicker and higher than those of the Kamtschadales. These miserable fortifications the Koriacs think impregnable, and capable of withstanding the attacks of their enemies; even of the Tchouktchis, the most formidable of their neighbours, both for number and courage. The population was estimated at three hundred persons, men, women, and children. M. de Lesseps saw here also twenty baidas, or boats, of different sizes; some large enough to hold from five and twenty to thirty persons. They resembled that noticed at Khaluli, but seemed better constructed, and from their lightness to be better adapted for sailing.

Impatient as M. Schmaleff was to get to Ingoo, his business made it necessary to suffer M. de Lesseps to leave Kaminoi without him. This resolution he announced to M. de Lesseps not without pain, pressing

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upon him at the same time a confidential soldier, named Yegor-Golikoff, which he called a valuable present, as the sequel proves it to have been.

The scarcity of dogs at Kaminoi, and the bad condition of M. de Lesseps', determined M. Schmaleff to give him the dogs belonging to the detachment; and on the 26th, at eight o'clock in the morning, he left Kaminoi, in tolerably calm weather, with an escort of four men; *i. e.* Golikoff, the soldier he had brought from Poutstaretsk, and two others, chosen out of the detachment from Ingiga, who were to serve as guides.

At the distance of fifteen wersts, he met again with the mountains he had already passed; and traversing them a second time, crossed a river called Chestokova, where he halted. Notwithstanding he was awakened by the gusts of wind which blew the snow about in such clouds, as made it difficult to distinguish whether it were day-light, he would still have continued his journey, but could not prevail upon his guides to quit the place, for fear of losing their way, or running into other danger during such terrible weather.

Thus opposed, M. de Lesseps re-entered his tent in no very good humour; but about noon he was agreeably consoled by the arrival of seven Tchouktchis, who came on sledges, like those of the wandering Koriacs, and drawn like them by rein-deer. He received them into his tent, and invited them to stay till the storm was over. Nothing could have been more flattering to them, as M. de Lesseps judged, from the air of satisfaction visible in their countenances.

Amongst these Tchouktchis was the Chief of the horde, named Tummé. He took upon himself to assure M. de Lesseps how sensible they were of his gracious reception. He assured him, that since they had heard mention of him, they had desired nothing so much as his acquaintance; and all their fear had been that they should never meet him. That they should never forget his person nor his kindness, of which they

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they would take care to render a faithful account to their countrymen.

M. de Lesseps' acknowledgments were equally gratifying, and the conversation became general. It turned upon different subjects, particularly their country and that of M. de Lesseps. When they understood that, in his return to France, he was to pass through the town that was the residence of their Sovereign, they requested him to give the Empress a faithful description of them, and to lay at her feet the homage of their respect and obedience. They added, that they thought themselves particularly happy in being tributary to Russia; that the intercourse between them and the Russians was every day improving, and that they were charmed with their marks of affection. They bestowed great praise on M. Gagen, Governor of Ingiga. They even wished for a closer connection with the Russians, which they said might be easily effected by their forming a new establishment on the river Anadir; and promised, that far from interrupting them, they would endeavour, by every possible instance of friendship, to make them forget the injustice of their former conduct; a conduct originating in error, from their looking upon the Russians, as the Koriacs had done, as a small number of individuals, who came as intruders to seize upon their territory, and of whom they thought it their interest to rid themselves. Their acquaintance with the Russians, they continued, had showed them their mistake; and far from revolting, they were determined upon disconcerting the seditious intrigues of a Prince or Chief of the Tchouktchis, whose name was Kherourgi, either by restraining his authority, or even by giving him up to the Russians.

It was impossible for M. de Lesseps to give these people any notion of geography, so as to make them understand the situation of France, or its distance from Russia; with which country they were but little ac-

quainted. They were still superior in understanding to the Koriacs, as well as in a thirst after knowledge. Their language was the same, but the pronunciation of the Tchouktchis was softer and pleasanter.

The notice M. de Lesseps took of their cloathing made them eager to know that of France; for which purpose he took a uniform out of his portmanteau. They all admired it in raptures, especially the buttons, which bore the arms of France, and which they begged M. de Lesseps would divide amongst them, promising to keep them as a mark of friendship, and to show them to all strangers, in hopes that some other Frenchman might visit them. After keeping up the conversation tolerably well through the medium of the guide, who served as interpreter, and regaling them with tobacco, having nothing to give them so acceptable, they parted in the most friendly manner. The Tchouktchis telling M. de Lesseps, that he would probably soon meet their equipages with their wives, whom they had left behind, in order to make the greater expedition. In a short time after their departure, the wind lulled, and M. de Lesseps pursued his route.

The day following, just as M. de Lesseps had determined to make a halt, having discovered near a wood a convenient spot for that purpose, he perceived, at some distance from him, a large troop of deer feeding at liberty on the top of a mountain. On examining them more attentively, he distinguished some men, who appeared to be watching them. He knew not whether to avoid or join them; but curiosity led him to reconnoitre.

By keeping along the wood, he was told he would come up with them, though he imagined that at the end of it he should have to pass a river, an arm of which he had lately crossed. Whilst he was surveying these people from the opposite bank, he was approached by two women, the elder of whom addressed him.

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How great was his surprize to find that they both spoke the Russian language. They told him he was two hundred paces from the camp of the Tchouktchis, which the wood concealed. In getting down to the side of the river, M. de Lesseps saw their sledges and tents, and desired the women to conduct him to them.

In their way, one of them told him she was a Russian, following the Tchouktchis from maternal affection. Dangers, fatigues, ill treatment, all appeared as trifles to her, if she could but go with them into their country, to claim her daughter, who had been detained there as a hostage. This child, she said, was travelling two years before, with her father, and several other Russians, upon the river Pengina. The company, consisting of nine persons, went quietly through the middle of the Koriacs, who were then threatened by a party of the Tchouktchis, at the head of which was this very Kherourgi of whom mention has lately been made. To save themselves from these dangerous neighbours, the Koriacs determined to advise them of the passage of the strangers, as of a prize which ought not to escape them. The artifice succeeded. Seduced by the attraction of an immense booty of iron and tobacco, the Tchouktchis followed the track of the travellers, whose courage could not save them, and four perished with their arms in their hands, the victims of a fruitless resistance. The husband of this woman was slain in defending his daughter, whom the conquerors tore from his arms, and carried off with three other companions of her misfortune. Since that time, the Russians had not ceased demanding the release of those prisoners, of which they had obtained a promise; but to that day, two only had been set at liberty.

The affecting narrative of this unhappy mother, which was often interrupted by her tears, readily excited the compassion of M. de Lesseps; and without knowing

knowing what weight his mediation would have with the Tchouktchis, he was induced to join his intercessions with her's, and had the satisfaction to see they were not fruitless.

The other woman, he learned, was born a Tchouktchi. In her infancy she had been taken by the Russians upon the river Anadir, and conducted to Yakoutsk, where she had been baptized, and instructed as far as it was possible. A soldier had afterwards married her, and left her a widow in a few years. She was then sent back with her children, by order of Government, into her own country, that she might give an account of the obligations she was under to the Russians. It was recommended to her to spread the circumstances of her history even to the most distant of the Tchouktchis, and to impress them with a sense of the numberless advantages they would find, by establishing a sure and friendly commerce with her benefactors.

She spoke the Russian, Yakoute, and Tchouktchi languages with equal facility; and told M. de Lesseps that the little light her education had given her, had gained her a degree of credit amongst her own people. That she had so far availed herself of the ascendancy she had gained over their understandings, as to have conquered many of their prejudices, and flattered herself that she should insensibly lead them to see their true interest. Her hopes, in this respect, were founded, in great measure, upon the character of the people; who, she assured M. de Lesseps, were truly hospitable, generous, kind, and in every respect preferable to the Koriacs.

The conversation of these women had so fascinated M. de Lesseps, that he was in the camp of the Tchouktchis without perceiving it. Their joy at seeing him was extreme. In a minute he was surrounded, and they spoke all at once to press him to pass the night with them. No sooner had he answered it was his intention

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to do so, than fresh transports and clamours were raised. He had ordered his tent to be pitched at the extremity of the camp; and whilst this was doing, he invited the Chiefs to visit him. Ready to use the permission he had given them, they did not wait to follow him to the tent, which he found as full as possible.

After the first compliments, a general conversation took place, such as had been held with Tummé and his companions. They expressed their submission to Russia, and a sincere desire of an establishment on the Anadir. They expatiated at length upon the motives of their journey; which had been principally for the sake of visiting some of their relations, allied to the Russians, and settled at Ingiga. Perhaps they had also some project of commerce; but the strongest sway seemed to have been their attachment to their countrymen, which was visible in the marked regard shown towards the Tchouktchi woman, and in the caresses bestowed upon her children.

They often entreated M. de Lesseps to banish all distrust, and to assure himself of their friendship. They thought he still had some of the reserve which the Russians showed in their interviews. Though not having the same cause of fear, he was far from suspicion. And he made them understand, that having no intention of offending any one, he had no dread of interruption; particularly in the midst of a nation like their's, where goodness and rectitude were conspicuous. This reasoning pleased them, and they seemed flattered by his confidence. On which account he thought proper to conceal his arms, and to reject the proposition of his soldiers, of having a sentinel at his tent.

Tobacco was distributed to the most distinguished of the Tchouktchis, and afterwards tea served, with biscuit made of rye. Their Chief, or Prince, named Che-

Chegouiagua, who was equal in rank and authority to Tummé, with two of his relations, and his two wives, who served as interpreters, supped with M. de Lesseps. The repast was very frugal, but very cheerful. Want of rest separated them, and they went away as contented as if they had the best cheer in the world.

The camp of these Tchouktchis, which consisted of a dozen tents, stretched along the border of the river, near their equipages, and at the back of the wood. The tents were of a square form, made of rein deer skin, and suspended by leather straps to poles planted at the four corners. Bundles of lances and arrows were fixed in the snow, to defend the entrance of each, which was very low, and so closely fastened as to exclude air. The dread of being surprized in the night by the Koriacs, made them take this precaution. As for the beds, they resembled those of the Kamtschadales; which were merely thin branches of trees spread like litter, and covered with deer skin. And there, in a space so narrow, that it was not easy to conceive how so many could crowd, a whole family slept, without the smallest attention to age or sex. The air was therefore very offensive; and, it must be sufficient to say, that they were indolent, and not very cleanly.

In the number of the Tchouktchis, which might be forty, were fifteen or sixteen women, with as many children, who were occupied in preparing the tents and victuals. Polygamy, or, rather, a promiscuous intercourse, was licensed among them; and it was even a politeness to compliment their guests with their wives and daughters. A refusal was deemed an insult. Each of the principal personages had his servant to take care of the deer, and to defend them in the night against the wolves, which infest those coasts.

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of a single deer skin, which hung to the neck, where it was open before and behind, and where it descended in the form of large breeches or trowsers below the knee. It was put on by means of the opening at the neck; and the only way of taking it off, was by untying the strings which fastened it under the chin, and it then dropt down altogether. When they travel they wear a kouklanki over this habit, with boots made of the legs of the rein-deer. Their hair, which is a deep black, is sometimes tied up in tufts, on the back of the head; but oftener separated on the forehead, and hanging down their sides in long tresses. Their ears and necks are loaded with glass ornaments of different colours; and when they are cold, the hood of the parque serves as a covering.

The countenances of the women have nothing agreeable: their features are large, but still more pleasing than the Kamtschadales. They are taller, but not so slender; and their dress gives them a clumsy air. Meantime the hardest labour falls to their share; such as lighting the fire, carrying wood, and water, and every thing necessary for household use: the old ones, principally, are thus employed.

The features of the men were more regular, without any thing Asiatic. Their complexion, as well as the women's, was very swarthy; and their dress, their sledges, all their customs, in short, were exactly like those of the wandering Koriacs.

These Tchouktchis take every year a journey to Ingiga. They leave their own country in the beginning of autumn, and do not arrive at that settlement till the beginning of March. The moment they have finished their business, for which a few days is sufficient, they set out on their return, that they may not lose the advantage of travelling in sledges. It is seldom, however, that they reach home before the end of June. The articles of merchandize which they carry out with them, are parques, made of sable or of fox skins;

skins; and the teeth of the morse, which produce excellent ivory. In exchange they take kettles, tobacco, lances, fusils, knives, and other instruments of iron. Little accustomed yet to the fusil, they do not make much use of it; but, on the other hand, they are exceedingly dextrous in directing an arrow, or in the management of a lance: these, therefore, are their principal weapons. Like all the inhabitants of the north, they are greatly inclined to inebriety; and such is their passion for brandy, that from the moment any is given to them, you must keep pouring it out for them till they are completely drunk. Less than this, they look upon as an insult: and will perhaps go so far as to use menaces and violence, in order to procure it. They are as ardent smokers as the Koriacs, and make use of the same kind of pipe, and method of filling it.

Determined not to stop any longer, M. de Lesseps went at day-break to take leave of the Tchouktchis in their tents. The parting was tender: they embraced him in turn, and he could not but be fully sensible of the hospitable reception he had experienced among them. He set out early, in order to go that day near thirty wersts. Half way he met, on the sea coast, with two balagans, and one yourte, inhabited by a family of Koriacs. An hour afterwards he reached the village of Pareiné, which is not so large as Kaminoi, but contains a greater number of people, and is commodiously situated on the river whence it takes its name, about three wersts from the place where it empties itself into the sea of Pengina; which forms here so narrow a gulf, that, in fine weather, it is easy to see from one shore to the other.

The first person M. de Lesseps met in this village was an old woman of a mixed breed, whose afflicted air caught his attention. Compassion and curiosity led him to accost her. His questions upon the cause of her sorrow drew from her a piercing cry, and tears

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were her only answer. Entreaties and a show of sympathy obtained at length the recital of her misfortune.

Fifteen days back, herself, her husband and son, with several friends, had left Ingiga in order to come to Pareiné to see their relations. Overtaken in the way by one of those terrible hurricanes, which had often alarmed M. de Lesepe, the travellers lost themselves, and were separated. The father and son in the same sledge, after wandering a long while in search of shelter, or for some mark by which they could recover the road, utterly perished. The greatest pains were used to discover them, and at the end of two days they were found buried in the snow frozen to death. It appeared from their posture, that having exhausted their strength, these two unhappy creatures, for the sake of warmth, had lain down close together, and had died in each other's arms. The woman, more fortunate than her husband, had found shelter on the edge of a river fifteen wersts from Pareiné, where she and her companions arrived, worn out with fatigue, and overwhelmed with grief. She added, that during the tempest, they were not able to distinguish the heaven from the earth. The snow froze as it fell, and pierced their clothes, so as to render them nearly unserviceable; but what increased the affliction of this woman, was the not having it in her power to return into her own country. No one there seemed disposed to furnish her with the means, which she continued to solicit in vain. At these words a torrent of tears flowed down her cheeks. M. de Lesepe knew not how to comfort her; he said all that pity suggested; but not having it in his power to afford her any assistance, he left her with regret that he could give her no other testimony than barren compassion.

Whilst he was talking with the woman, the inhabitants of Pareiné had assembled round him; and their chief or prince, whose name was Youlitka, approached to invite him to pass the night in his village.

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Something in his countenance confirmed the reports of his perfidy, and M. de Lessops gave him to understand, that he had no desire of stopping. On this refusal, he observed the impossibility of procuring dogs or provision till the morning. The reasons he assigned plainly showed an evil disposition. And his ill treatment of a sailor who had been sent the preceding year with letters from Government, led M. de Lessops to suspect the badness of his intentions at present. Resolved, therefore, to get away at all events, he replied he must give up what could not be obtained, but that nothing should oblige him to stay. Youtitka pretended not to understand him, and mentioned a fresh obstacle; at the same time putting on a contemptuous smile which seemed to defy his departure. M. de Lessops perceived the necessity of arming himself with more resolution, or of submitting to whatever this villain might think proper to impose. The whole village was present. Two hundred men at least pressed tumultuously upon him, either to strike him with terror, or to observe his embarrassment. In this perilous conjuncture, he thought of addressing them in the Russian language; hoping that in the number there might be some who would understand him, and who would be more tractable than their chief.

His harangue was short, but earnest. Asserting his right as a stranger to their assistance, and urging the respect which his conduct had never failed to insure from all their countrymen; that far from ever having occasion to intreat or to show the orders he carried, his demands had always been prevented.

At the word orders, he perceived the people look at each other with astonishment; and in proportion as his discourse seemed to make an impression on them, he increased his warmth and assurance. Till at length taking out his passport, and darting an indignant look on Youtitka, he presented it to him, and declared that he should go on in two hours at most.

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This abrupt conclusion disconcerted him. He saw that he could not safely hold out any longer. The Governor's mandate was too formal and too direct for him to dare to oppose it. He, therefore, ordered the quantity of fish, that M. de Lesseps requested, to be collected, begging him at the same time to have some regard to the scantiness of their provisions, which would thus be greatly diminished. It was that, he said, had led him to throw any difficulties in the way; as he was afraid their stores would be exhausted. But this was a mere subterfuge, there being sufficient proof that they were abundantly provided.

Meantime, to look as if he meant to make amends for his uncivil reception, he invited M. de Lesseps to wait in his *yourte* while the people were preparing for his departure. Unwilling to shew any signs of uneasiness, M. de Lesseps accepted the invitation, and offered to give him a better repast than he could probably provide. He was not, however, perfectly at his ease, when he found, that to go into this *yourte*, he had to descend fifty feet under-ground. The extraordinary depth of this retreat gave him up at once to the power of his host. His own people would never have been able to hear him nor to succour him. He repented his imprudence, but there was no time to recede. He was well armed, and prepared to defend himself, in case of insult.

The first care of Youlittka was to place him in the seat of honour; that is, in the alcove, or recess, reserved for the head of the family, which here was very numerous, there being nearly eighty inhabitants of this *yourte*! They had all been drawn out by the report of M. de Lesseps' arrival, and still remained round his attendants; so that he had singly to contend with three or four of Youlittka's companions or relations, who examined him with their noses almost in his face. Imagining they talked the Russian language wonderfully well, because they could lamely

utter a few words, they asked him the absurdest questions, one after another. His situation made complaisance highly necessary, and he answered them with politeness and precision. An hour was passed amidst these barbarous animals, who were formed to intimidate, particularly their Chief, than whom it is difficult to imagine a man more completely ugly. He was fat and short, his face seamed with the small-pox, besides other wounds; he had a sullen countenance, with black hair that joined enormous eye-brows, under which was one eye only, sunk and fierce. Such was the exact portraiture of this Koriac Prince.

M. de Lesséps' soldier had not entered the yourte, and he began to be very uneasy. In attempting to go out, the Koriacs placed themselves before him; and one of them took him by the arm, to make him resume his seat, asking, at the same time, if he wanted to save himself. He put a good face upon it, and sat down again; and, in spite of the alteration, which could not but be seen in his countenance, he replied, that he did not imagine there was any thing to fear. Youlittka then endeavoured to give him confidence; he assured him that he was in perfect safety; his past conduct, he added, might have appeared suspicious; but he thought it necessary for his honour to clear that up. Proud of having had a seat among the judges of the tribunal at Ingiga, he had his reputation too much at heart to suffer M. de Lesséps to be ill treated before him.

M. de Lesséps knew his man too well to place any faith in such fine protestations, and thought himself happy that Youlittka dared not to do what he might, and what he probably wished to do. He hastened then to quit the yourte, under pretence of seeing where his people were, and to give directions for dinner. Still he could not rid himself of this perfidious Koriac, who persisted in accompanying him whilst he was assembling his suit. Every word seemed to alarm him;

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him; and not understanding Russian, he required an immediate interpretation, and watched every motion with singular attention.

M. de Lesseps found his people occupied in bartering the bad dogs that were left, for furs and clothing of deer-skin. Their avarice had made them forget his commands, and the danger in which they had left him. He, however, concealed his displeasure, on account of the witnesses, and descended again into the yourte, followed by Youltitka and his two soldiers, who immediately set themselves to get dinner. The women assisted in cleaning the dishes, which they did with the scrapings of a stick, instead of a cloth or towel; and, by degrees, with the help of brandy, good humour took place of fear and distrust. They made a joyous repast, and M. de Lesseps prevailed on himself to join their violent fits of laughter, in order to convince them of his satisfaction. A boisterous expression of sentiment is the only thing that pleases them. The dinner ended, he sent one of his soldiers to order the dogs to be harnessed, a pair of which had been recruited; the provisions were loaded, and in ten minutes he was ready to bid the Koriacs adieu. They appeared very much satisfied with him, whether they were so or not. As for M. de Lesseps, he was perfectly so in being delivered from them, and was off as fast as possible. It was only two o'clock, and he thought it proper to take advantage of the rest of the day, for the loss of time he had unavoidably endured; and therefore would not stop till he had gone fifteen wersts from Pareiné.

The road, that and the following day, offered nothing remarkable. For some time he had lived upon the flesh of rein-deer, which, though delicate food, easily cloyed. The worst was, that but little of it remained; so that they eat it but once a day, and made up their other meals with dried fish, and sea-wolf boiled. To day, which was the 30th, M. de Lesseps killed a

brace of partridges, and added them to the stew. The weather was remarkably fine, and the hopes of its continuance raised the spirits of the guides, and tempted them to make a good day's work. They did not halt till very late, in a spot quite unsheltered, finding only a kind of small cedar tree, which grew straggling and crooked.

On the 3rd, they had just packed up the tents, when they descried a train of five sledges of Koriacs, drawn by rein-deer. The dogs, allured by the scent of these animals, made after them with astonishing ardour, and would have infallibly fallen upon them, had they been within reach. It was with difficulty that they were restrained; and M. de Lesseps and his party endeavoured to make the Koriacs understand that all they wanted was a moment's conversation with them. A council was held, and, after some minutes, one of them was detached towards M. de Lesseps, but stopped at the distance of about three hundred paces, and made signs for him to send one of his people to meet him, and above all, to keep in the dogs. One of the foldiers was therefore sent on to the Koriac, to enquire what road they were going, whence they came, whether they knew any thing relative to M. Kasloff, and, principally, how far they were from Ingiga?

In half an hour the messenger returned with the information, that they were wandering Koriacs, returning from Ingiga, whither they had been to sell their deer-skins, and to see their friends. They thought they had heard of a reinforcement of dogs and provisions having been lately sent to the Governor General, but they were not certain. The distance from Ingiga was said to be from fifty to fifty-five wersts.

It was now six o'clock in the morning, and in the course of this day's journey, which M. de Lesseps hoped would carry him to Ingiga, he greatly astonish-

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ed and diverted his people, by undertaking to conduct them by means of his compass, telling the guides to acquaint him only if they should lose their way. By half past eight a violent tempest, which M. de Lesseps had predicted, seemed to be coming on apace, and drove several of the sledges out of the road. The guides, blinded by the wind, became terrified, and conjured him to halt; but he only renewed his promises and his orders, and the situation of Ingiga having been pointed out to him, persisted in going on; assuring them that if they did not arrive there by nine o'clock, he would go no farther that night. At a quarter before nine the rest of Ingiga was sufficiently discerned. They had then no wish to stop, and crossing the river that ran under the walls, at half past eleven they entered the town; not without ascribing to M. de Lesseps the greatest proficiency in magic which they had ever witnessed.

Ingiga was the most considerable and most populous town M. de Lesseps had yet seen. It is situated upon a river of the same name, thirty wersts from its mouth, encompassed in a square of palisades of an astonishing height and thickness, and defended by wooden bastions raised on piles at the four angles. Each of these bastions, armed with cannon and plenty of ammunition, is guarded by sentinels night and day, as are also the three gates of the town, one only of which is kept open. These sentinels are constantly obliged to observe the greatest alertness, for fear of a surprise from the neighbouring Koriacs, whose bold and mutinous disposition frequently leads them to revolt, and to attack the town in a moment of suspected negligence; they are therefore not suffered to make any stay in the town, whenever business leads them thither. Before the Governor's house is a small square, defended by a guard. The houses were all of wood and low; but they had all a front nearly regular, and upon the same plan. It was the intention of M.

Gaguen to improve and beautify the town by degrees. The isbas, built since his arrival, joined to an agreeable appearance all the interior advantages of which such habitations were capable. He had also a project to rebuild the church, the construction of which was shocking; it was, besides, going to decay.

The town contained from four to five hundred inhabitants, who were either traders, or in the service of government: the latter formed the major part, and composed the garrison. They were subject to a severe discipline, which the frequent necessity of defence rendered indispensable. In this respect the vigilance and zeal of the governor left nothing wanting. There were the same tribunals as at Nijenei-Kamtchatka.

Furs, and principally the skins of the rein-deer, make the trade of Ingiga; and, in general, they have a greater diversity of skins, and those of a superior quality, than are to be found at Kamtschatka. It is in that island that they get the skins of the otter and of the sea-wolf; but the fables are not so beautiful as at Ingiga, though they are more common. Besides, the Kamtschadales have no common martens, or American rats, called rissai, which the Koriacs procure in exchange from their neighbours the Tchouktchis, and which they import to Ingiga with their deer skins. These they sell raw, and at a good price: they are afterwards tanned, and prepared with so admirable an art, as to defy the want of European instruments. Gloves and stockings are remarkably well made. Their sewing and embroidery is done with the hair of the rein deer, with silk or gold, and would do credit to the most dextrous glover.

At Ingiga M. de Lesseps met with a Koriac Prince, named Oumiavin, whom he had before seen at Kami-noi. He was also a zafsédatel, or Ingiga judge, and had come hither to offer his services to M. de Lesseps. He was a most intelligent man, spoke the Russian language

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guage perfectly well, and appeared to have great rectitude of mind. His notions of religion were extraordinary; having a great desire to become a Christian, but for some favourite tenets belonging to the religion of his country; particularly its offering, as he said, more hope than fear, and confining its punishments to the present world, with the expectation of happiness only in the next. He was brother to a Chief of the wandering Koriacs, and from him M. de Lesseps got much information respecting that people in general.

There is, in many respects, a great resemblance between the fixed and wandering Koriacs. It appears the more strange that there should be so little union, and such a misunderstanding between them, as to make them almost two different people. They are, nevertheless, of one country, which is of vast extent; bounded towards the south by the peninsula of Kamtschatka and the gulf of Pengina, on the east by the country of the Olutierians, towards the north by that of the Tchoukchis, and on the west by the Tounghouses, the Lamouts, and the Yakouts.

It was asserted that that country had formerly been well peopled, but that the small-pox had taken off great numbers. M. de Lesseps doubted whether it had destroyed more than their frequent contests with the Russians and their other neighbours. The number of fixed Koriacs was then estimated at nine hundred; and though it was hardly possible justly to calculate that of the wanderers, they were not supposed much to exceed the former.

The manners of the fixed Koriacs had nothing estimable; they were a mixture of duplicity, of distrust and avarice. They had all the vices of the nations north of Asia, and none of their virtues. Robbers by nature, they were suspicious, cruel, without either benevolence or pity. To obtain any service from them, it was not only necessary to offer them a recom-

pence, but to give it beforehand. Nothing but presents can prevail on them to stir.

With a disposition so perfidious and savage, it was not easy for them to live in peace, nor to form any lasting alliances with their neighbours. So unfociable a temper made them naturally jealous of foreign dominion. Hence their continual insurrections against the Russians, their atrocious robberies, their daily incursions upon the people round them, and that respective vengeance which was continually showing itself.

If any thing can add to this abominable picture, it was that inflexibility of courage, deserving rather the name of barbarism, that directed all their combats, and that was attended with a contempt of life. Nothing intimidated them. If the valour or number of their enemies threatened danger, they then swore to "destroy the sun." An oath which they discharged, by first killing their wives and children, and burning all their possessions, and then throwing themselves with fury into the midst of the enemy. The total destruction of one of the two parties ends the contest. The vanquished never think of saving themselves by flight. Honour forbids this to the Koriacs, not one of whom will survive the death of his companions.

Their acquaintance with the Russians had not yet produced any change in the manner of life of the fixed Koriacs. Their trading intercourse had only made them sensible of the attraction of riches and plunder; and indifferent to the advantages of a more polished life, they rejected civilization, considering their own manners and customs as good as possible. Hunting and fishing are their habitual occupations; but when the season will not allow this, they shut themselves up in their caves, to sleep, smoke, and get drunk. Careless of the future, and without regret for the past, they leave their yourtes only when urgent necessity

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cessity constrains them. Foes to labour, they live, like the Kamtschadales, on dried fish, the flesh and fat of the whale, and of the sea-wolf; one of which is commonly eaten raw, the other dried and cooked in the same manner as the fish; but the sinews, the marrow, and the brains, often pieces of the flesh, are devoured raw with barbarous avidity. The reindeer is their highest esteemed food. They have also vegetables, and gather in the autumn different sorts of berries, with some of which they make refreshing beverages, and others are bruised and kneaded up with the oil of the whale or sea-wolf. Instead of brandy, which is dear and scarce, they have a liquor as intoxicating, made of a red mushroom, used in Russia as a poison to destroy insects, and called moukhamorr. This is put into a vessel with certain fruits, and before it has time to get clear, the friends are invited to a feast, which lasts two or three days, or till the liquor is expended; and often, to insure the loss of reason, they eat the mushroom raw. The effects of this intemperance were seldom fatal, though M. de Lesseps saw some made severely ill, and recovered with difficulty.

The women carry their children in a cradle of a singular form. It is a kind of basket with an arched top, in which the child sits under cover.

Among their most extraordinary customs, are those of courtship and marriage. As soon as a young man has fixed his choice, he presents himself to the parents of his mistress, and offers to work for them: that is the term. From that moment the girl is so covered up with a great number of garments, that her face is hardly to be seen. She is never alone an instant. Her mother and several elderly matrons follow her wherever she goes, lie at her side, and never lose sight of her on any pretence. All the care of the lover, as the only means of obtaining her, is to touch her naked skin. Meantime he fulfils, with zeal and resignation, the

the duties imposed upon him by the parents. Become the slave of the family, he is employed in every kind of domestic labour; such as going to cut wood, carrying water, and providing ice. Love and the presence of his future wife, supply him with resolution; and a single regard, however indifferent, makes him forget the fatigue and pain of servitude. The hope of abridging this directs all his actions. His eye is constantly fixed on the idol of his heart; he watches all her motions, pursues her steps, and incessantly throws himself in her way. But to deceive the Argus eyes of those surrounding her, is a continued struggle between vigilance and address. In moments of leisure, at liberty to see and approach his mistress, he sometimes endeavours to obtain his end by stealth; but the number and thickness of her clothes is an insuperable barrier. Enraged by so many obstacles, he tears and pulls off these vexatious coverings. Woe be to him if he is caught! The mother and the inflexible duennas force him to quit his prize, with kicks or with a stick. Should he resist or murmur, he is immediately discarded, and loses for ever the hopes of an alliance, which is the highest affront an amorous Koriac can receive. Difficulties, however, sharpen his desire. Far from complaining, or being discouraged by these rigours, he believes he shall, on that account, become more worthy of the happiness which is promised him. Two or three years are frequently passed before his difficulties are surmounted. Proud of a victory, he hastens to announce it to the parents. The witnesses are summoned, the girl must confess, and must prove that she in vain made efforts to defend herself, though it is not impossible that, equally desirous with her lover to put an end to this laborious novitiate, she acknowledges herself touched before it has really happened. Her hand is then given to the conqueror, who is still obliged to wait till he is assured that the young lady can prevail upon herself

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herself to live with him. From this moment he is exempt from all labour, and pays his court, without constraint, to his future bride, who is not sorry to find herself delivered from her weight of clothing. This second courtship seldom lasts long. She soon, in the presence of her family, gives her consent, and that is sufficient to establish the rights of a husband. The ceremony and the nuptial feast end the business, by assembling the relations, who emulously get drunk after the example of the new married couple. A plurality of wives was interdicted among the Koriacs, though M. de Lesseps had seen instances of it.

At their funerals they adhere to many ancient Pagan institutions, still in use among the different barbarous nations of the new hemisphere. When a Koriac dies, his next of kin, and his friends, assemble to pay him the last duties. A funeral pile is prepared, on which is deposited a part of the riches belonging to the defunct, as well as some kind of food, such as rein-deer, fish, brandy; in a word, all that it is thought will be necessary for his great journey, and to prevent his dying of hunger in the other world. If it is a wandering Koriac, his rein-deer draw him to the pile; if one of the fixed tribe, he is drawn by his dogs, or carried by his relations. The body is exposed, clothed in the best garments of the deceased, and laid in a kind of coffin. There the last farewell is made by the assistants, who, armed with torches, consider it an honour to reduce their relation or friend to ashes as quickly as possible. His loss is felt only as a temporary absence, and not as an eternal separation. They have no mourning, and the funeral pomp is terminated by a feast of the family, where the fumes of liquor and tobacco efface, by degrees, the remembrance of the dead! After a few months of widowhood, the women are allowed to marry again.

The religion of these people, which is exactly that of the Tchouktchis, and of the Kamtschadales before the

the introduction of Christianity, teaches them the acknowledgment of a Supreme Being, the Creator of all things, who inhabits the sun. They neither fear this Being nor adore him. No prayer is ever addressed to him. His essence is goodness, and he can do no ill. He is the cause of all good.

The principal of evil is a wicked spirit, who divides the empire of nature with the former. Their power is equal. In proportion as one studies the happiness of mankind, this other endeavours to render him miserable. Diseases, tempests, famine, and all kinds of plagues are his work, and the instruments of his vengeance. To disarm him of this, personal interest is engaged, and devotion applied. Fear, with which this menacing deity arrests the heart, is the sentiment that dictates homage. To him they offer animals newly born, rein-deer, dogs, the first fruits of hunting and fishing, with every thing particularly precious. The only prayers addressed him are those of petition and thanksgiving. But he has neither temple nor sanctuary in which his votaries can assemble. He is every where equally adored. He hears the Koriac who prays alone in the desert, as well as the family who think to render him propitious by getting piously drunk in the yourte. For the habit of inebriety is become, with these people, a religious practice, and the foundation of every solemnity.

This demon, this formidable spirit, is, without doubt, the same as the Koutka, of whom the Kamtschadale chamans call themselves the ministers and organs. Here, as in that peninsula, the mysterious language of these forcerers impose upon the credulity, and attract the respect of the multitude. They exercise medicine and surgery with the same success. These exclusive functions, which are supposed to be assisted by inspiration more than by the help of experience, insure them unbounded power. They are called

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called upon from all parts, and testimonies of acknowledgment prodigally lavished on them in advance. They haughtily exact what they please, and receive as a tribute whatever is given them. It is always under the title of an offering to the God who speaks through them, that they appropriate to themselves the best and the finest of what the inhabitants of this country possess. They pretend to fast the whole day preceding any of their magic ceremonies; but in the evening they make amends by eating and drinking abundantly of the moukhamorr, that intoxicating poison already described.

The pronunciation of the Koriacs has no affinity to that of the Kamtschadales; it is more shrill and slower, but less painful, having none of those extraordinary sounds, those whistlings, which are as difficult to utter as to write.

From the time of M. de Lesseps' arrival at Ingiga, M. Gaguen, at his intreaties, had been providing the means of his departure as soon as possible. Had it depended on himself, he would not have stopt more than four and twenty hours; but unfortunately his dogs were harrassed, and a very small number could be procured in the town, and they no better. It was therefore proposed, that he should take rein-deer, to which he readily agreed, as a quicker method of travelling, though more hazardous and fatiguing.

In order to satisfy his impatience, and enable him to pursue his journey with as few obstacles as possible, M. Gaguen resolved to consult with the Chiefs of the wandering Koriacs that were in the neighbourhood; and in consequence sent an invitation to them. In two days twelve of these Princes arrived with several other Koriacs, whom the Governor had equally apprised.

After the usual compliments, M. de Lesseps was presented to the assembly; at the same time, an interpreter summarily explained to them who he was, the importance

importance of his embassy, and the need he had of their assistance. A general murmur succeeded this short explanation. They despised the orders of government, and alledged that the fixed Koriacs were as much bound to convey strangers as they. Their remonstrances, which seemed to be well founded, though ill humoured, greatly disconcerted M. de Lesseps, till an old Prince took up his cause, and promised if any of them would conduct him to his dwelling, he would carry him on as far as might be necessary. This address brought them to their senses, and covered them with confusion. Each endeavoured to exculpate himself, and M. de Lesseps had excuses and offers in abundance. There was even a contention who should transport him and his effects as far as the Stoudenaia-reka, or Cold River, on the borders of which dwelt the kind Prince who had at first so willingly entered into his service. Every difficulty vanished; and his departure was fixed for the 5th of April, on which day the whole assembly undertook to attend his orders. M. de Lesseps was delighted to find that the person to whom he was so particularly indebted, was the brother of Oumiavin, with whom he had so much wished to be acquainted.

From this instant M. Gaguen put every thing in motion for his departure. He had a number of small loaves of wheat made, with a supply of rye buiscuit. A portion of eatables, reserved for his own use, was put up with the baggage, and several presents, offered with a politeness and warmth that made it impossible for M. de Lesseps to refuse them.

It was not till towards night, on the 5th, that the persons, who had agreed to conduct M. de Lesseps, made their appearance; and the next day, being Sunday, nothing could prevail on them to set out, till M. Gaguen got the better of their superstitious fears by the help of brandy. Two of the soldiers, who had come with M. de Lesseps from Kaminoi, remained at

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Ingiga, which was their ordinary residence. The two others, Golikoff and Nédaréroff, went on with him ; and a young Russian merchant, of the name of Kischlioff, who had asked permission to accompany him as far as Okotsk, and who proved an agreeable companion.

When the sledges were ready, M. de Lesseps found for his immediate conductor a Koriac Prince, named Eviava, who expressed great joy at the honour that had fallen upon him, and halted to join the line.

The following description of a Koriac sledge may be worth reading. Upon two parallel skates, that is to say, on two branches of a tree six feet and a half long, three inches wide, and very ill finished, of which the ends in front bend upwards, in the shape of a half crescent, rests the body of the sledge, which is nothing more than a frame of open work, raised two feet and some inches from the ground. The width eighteen inches, and five feet in length. Two small poles, about five inches in circumference, form the frame of the open work, which is made of large laths, let in one upon another. A cross bar, more substantial than these poles, unites their forward extremities, which join the arched ends of the skates, and are fastened to them with thongs. The lower part of the open work rests upon curved sticks, the points of which are regularly fixed in the skates. The back of the upper part is something like a small open chaise, sixteen inches high, and two feet deep, made in a circular form, with short sticks, in the manner of a garden chair. In this narrow enclosure the provisions are commonly put, or whatever may be wanted for daily use. M. de Lesseps sat here on the box that contained his dispatches. The driver sits astride towards the middle of the carriage, with his feet on the skates.

These sledges are drawn by two rein-deer abreast. The harness is a leathern collar, from which a trace is carried across the breast, and between the two fore-legs

legs of the animal, and passing along his side, to which it is kept by a leather strap, is fastened to the cross piece of the sledge. This is for the deer on the right-hand side. The trace of that on the left is made fast to the bottom of one of the crooked supporters; the reins are two thongs fastened round the root of the horns of each deer. The driver carries also a stick, armed at one end with a sort of hammer; which is a stone fixed horizontally, very rough at one end, presenting a point nearly two inches in length. This is principally used to disengage the traces without stopping, in case they should become entangled in the legs or feet of the deer; and in doing which consists the chief skill of the driver. The other end of the bone is round, and is used instead of a whip, but with more pain to the poor animals, who are sometimes covered with streams of blood. These sticks are very apt to break, so that they carry a supply with them, which are fastened to the sledge.

At seven o'clock they stopped half way up a mountain, known to the Koriacs, and marked out as the place for their first halt, which does not depend on the convenience or wishes of the traveller, but on the finding a spot that may afford moss for the deer, who, as soon as they were unharnessed, began to scrape away the snow, under which they well knew they should find their food. After a frugal supper, M. de Lesséps laid down on the snow, where having been allowed to sleep a few hours, he was peremptorily called upon to continue his journey.

It may be necessary to observe, that the Koriacs will travel four, five, or six days, with very little rest. The rein deer are trained to run night and day, three hours at a time; they are then unharnessed to feed one hour, after which they go on with undiminished ardour; and this treatment is continued to the end of their journey.

Before remounting, Eviava mentioned to M. de Lesséps

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Lesséps the necessity of lightening his sledge; and proposed, if he would try to drive himself, to take one of the empty sledges, which they had with them in case of accident. To this M. de Lesséps willingly agreed, but it nearly cost him his life. Unaccustomed to the kind of harness, his leg caught in the left trace, and he was thrown out of the sledge. In his fall he let go the reins, and the deer no longer feeling restraint, increased their speed, and dragged him some distance, with his head knocking against the skate. He had lost his senses, but by an involuntary motion of his hand he caught hold of the reins, and with a sudden check stopped the deer. In a few minutes his senses returned, and he pursued his journey with no other injury than a contusion on the leg, and a violent head-ache. He however redoubled his care, especially when he was told by the Koriacs how fortunate he was that the deer had not betaken themselves to the mountains, where it might have been three or four days before they were recovered, if at all.

On the left they saw the village of Kasbanda, situated on the sea coast, ninety wersts from Ingiga. It appeared very inconsiderable at the distance of one werst. Three wersts farther on were two yourtes, and six balagans.

They had still seven wersts to the place destined for their halt, which was a wretched hamlet, in the middle of a little wood, watered by the river Noyakhona. A single yourte and three or four balagans composed the whole. These were inhabited winter and summer by ten or twelve Koriacs, who received him kindly; at least they put him under cover, which was a great thing for a man often reduced to the necessity of sleeping under the canopy of heaven on a bed of snow.

On the evening of the 8th, Eviava, ignorant of the immediate situation of the yourte of Oumiavin's brother, proposed ascending a mountain on the left,

at the top of which he hoped to meet with one of his countrymen, who would be able to give him instructions. In an hour and a half they reached the summit, where not a vestige of any habitation was to be seen. M. de Lesseps, greatly fatigued, desired Eviava to go in search of his friend, while he reposed himself. In three hours he returned full of joy, having found Prince Amoulamoula and all his horde. They had instantly prayed that M. de Lesseps would stay where he was till the next morning, as they were all desirous of coming to meet him. This circumstance was not unpleasant, as it gave him almost a whole night's rest.

At day-break the visitors appeared. The Chief first approached to pay his compliments in the Koriac manner, accompanying them with a fine red and black fox skin, or *févadouschker*, which he took from under his *parque*, and begged M. de Lesseps to accept. In return for his civility, he treated them all with brandy and tobacco; and making them understand how sensible he was of their kindness, took his leave with every information necessary to direct his course.

Though the snow was deep and not very firm, the deer went on with astonishing ease and lightness. They have the advantage of dogs, as their feet are broader, and do not sink so much. On the other hand, dogs do not tire so soon, and are therefore not obliged to stop so often.

On the way M. de Lesseps killed several white partridges, of which there were great numbers. Some wild rein-deer also fled swiftly at his approach. Fortunately the abundance of his provisions left him without any wish of killing them.

By noon they could distinguish the *Stoudenaia-reka*, and in an hour they had crossed it, and were arrived at the habitation of this brother of Oumiavin's, in whose hands Eviava had undertaken to place them.

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M. de Lesseps' new host met him at the head of his family, who expressed their satisfaction at his arrival. The address of the old Prince was short, but affectionate, and full of his usual cordiality. Every thing belonging to him, he assured M. de Lesseps, was at his disposal; and all his people were immediately busied in placing the sledges and effects under cover. M. de Lesseps thought only of his dispatches, which, it was necessary to inform them, he never suffered any one to carry but himself.

His first care, after entering the yourte, was to pay Prince Eviava his post charges. He had twelve sledges, each drawn by two deer; the distance was one hundred and eighty-five wersts; the money was therefore seven roubles and forty kopecks. On receiving this sum the good conductor admired his generosity. M. de Lesseps observed that it was no more than his due: the paying it however appeared to him an act of virtue. Such encomiums led M. de Lesseps to suspect that the Russians are something more than economical. They assert indeed that their travelling in this country is not expensive.

The name of the brave Koriac, with whom M. de Lesseps was now lodged, was Oumiavin, baptized in his infancy by that of Simeon, which distinguished him from his brother. He frankly confessed that he had no notion of the Christian religion. He was ignorant of its duties, and even of its first principles. Left to the senseless errors of his own country, and a few Christian ceremonies, which custom had taught him; such as making the sign of the cross, in the company of Russians, on entering the yourtes, and before and after meals; he had happily found in his heart the rudiments of a natural morality, by which alone his actions were directed.

Like all the Koriacs, he was of small stature and swarthy. His countenance was characteristic of his mind. An expression of candour and goodness pre-

judiced every body in his favour. Added to this, his white locks, with the regularity of his features, gave him truly a distinguished air. He was lame in the right arm, in consequence of a perilous combat sustained with a bear. Fear had dispersed his companions, when he alone opposed the animal, and with no weapon but his knife, he at length threw him down and killed him. Hunting was his great amusement, in which his skill and intrepidity rendered him very successful.

But the energy of his mind made him particularly estimable and interesting. He had been the first, whom the tyrannies practised by some of the Russian subaltern officers over their new subjects, had roused to vengeance; and assembling some of those who, with himself, had been the greatest sufferers, in an appropriate speech he imparted to them his design of carrying their complaints to Petersburg. The contest of who should go was zealous and general. The most wealthy and the boldest were chosen; at the head of whom was Oumiavin, on account of his speaking the Russian language, which he did with tolerable facility. Arrived at Okotisk, where their project had got wind, they were totally defeated by court subtlety; and obliged to return with the sacrifice of the greater part of their wealth, and their deer.

Not discouraged by this disappointment, Oumiavin still had hopes of accomplishing his design; and thought the expediency of it fully proved by the measures that had been exerted against it.

As a farther proof of his generosity, M. de Lesseps gives the following anecdote: The considerable expence incurred in the undertaking just mentioned, had nearly ruined him. Much time was necessary for the recruit of his flocks, which, during his absence, had fallen into decay, from the negligence of their attendants. Many months before, one of his relations had lost all his deer, and saw himself reduced

to a state of servitude. Simeon, willing to assist him, had made up a small herd, which he lent him without interest. At his return from his fatal expedition, notwithstanding his extreme distress, he refused to take the deer back, not finding them sufficiently increased to enable his debtor to return them with convenience.

The greatest riches of this wandering tribe is their deer. The Chief of a horde seldom has fewer than from two to three hundred; many have three or four thousand. Simeon's flock at this time was between eight and nine hundred, which made a very pleasing appearance. They feed on the top of a mountain, in the neighbourhood of the Stoudenaia-reka, whence they seldom stray, and when wanted are caught without difficulty. A particular cry of the keepers draws them together, when a halter with a running noose is thrown over the necks of such as they wish to detain, which is done with great dexterity. The female deer are seldom put into harness; and the young males, destined to work, are prepared as horses in general are in England.

In a herd there are almost always three or four deer that are trained for hunting. The instinct of this animal is inconceivable. He carries on the sport as he feeds. At the sight of a wild deer, without any sign of joy or surprise, he begins immediately to imitate him, till he gets near without giving any cause of suspicion. Presently they are seen playing together, running, chasing, and pursuing, till the wild deer is drawn by degrees within shot of the sportsman. With a well taught deer the wild ones are sometimes taken alive, by means of a springe or noose suspended to the horns of the tame deer, who contrives in play to throw it over the horns of his adversary, and detains him in this manner till his master comes up.

The habitations of these wandering Koriacs are very different from those of the fixed tribes, though they

have all the common name of yourte. Those in question are, properly speaking, tents above ground, in the form of huts, and are nothing more than a great number of poles fixed at equal distances, meeting at the top, and covered round with tanned deer-skin till within a few feet of the summit, where an aperture is left for the smoke to escape, and for the admission of air. The size of Oumiavin's was eight yards in diameter, and nearly as much in height. The circumference at the bottom was twenty-four yards, the top terminating like a cone. The family and the deer keepers lie under pologs or tents of a smaller kind, which are ranged in different apartments round the wall of the yourte, and resemble the square tents of the Tchoutkis.

This kind of habitation, which is easily moved, is perfectly adapted to the unsettled state of these people, who shift their quarters as convenience or necessity dictates; always choosing the neighbourhood of rivers, and particularly such spots as abound with moss.

Twelve sledges having been prepared at eight o'clock on the morning of the 10th, M. de Lesseps continued his journey, accompanied by M. Kisseloff and Simeon Oumiavin, who insisted upon being his guide as far as Yamtk. By noon they crossed the Tavatoma, having travelled twenty-five wersts. Near this river M. de Lesseps and M. Kisseloff went a little distance out of the way, for the purpose of seeing a hot spring, to which Oumiavin directed them, and which appeared to contain sulphureous and saline particles; but the most singular circumstance was the effect the water produced upon them. M. Kisseloff having washed his face with it, had the whole skin taken off; and M. de Lesseps, from slightly rinsing his mouth, was unable to eat or drink any thing hot for a long time. Hence they went on nearly four days without any remarkable occurrence, and on the 14th,

at

at four o'clock in the afternoon, entered the village of Toumané. It is situated south-west of Ingiga, at the distance of four hundred and forty wersts, in a little wood, through which a river runs of the same name. Three yourtes, as many magazines for wood, and twelve balagans, composed this ostrog, the population of which amounted to twenty families. Although the river abounded with fish, and with excellent trout in particular, the inhabitants, from idleness or want of taste, contented themselves with the back of the birch-tree steeped in whale oil.

The 15th and 16th they had bad weather; but had not this been the case, the deer were unable to proceed further, which Oniavin disclosed, not without great tribulation; and by his advice M. de Lesseps pressed the inhabitants to give him all the dogs they could find, which was but a small number, and among these, from necessity, were young dogs, and females on the point of bringing forth. The generosity of these people went so far as to give up a part of their provisions of dried fruit, of which they had no great quantity.

On the 17th the wind abated, though the sky remained charged with black threatening clouds. Meantime M. de Lesseps having taken leave of the faithful Simeon, and his hosts of Toumané, departed at one o'clock with his escort and all his baggage upon five open sledges, each having eight or ten dogs.

They had scarcely advanced fifteen wersts, when the snow and the wind compelled them to seek shelter; and the guides proposed going to a deserted yourte, which they knew to be at no great distance. It was on the banks of a small river called Yovanna, twenty wersts from Toumané. When they came to it they were covered with snow, and nearly frozen. Every one was for descending as fast as he could, but they had first four feet of snow to clear away from the entrance. This was effected by the help of their rackets in an hour's time. Still they had no ladder,

but the boldest leaping down, the rest followed, and fell on the carcases of sea-wolves entirely frozen, and some of them partly devoured; no doubt by wild beasts, who, in the depth of winter, had made a den of this yourte. A seine of leather, in one corner, was the only indication of its having been visited by human beings. Here however they passed a tolerable night, and were detained by the weather, much against their wishes, till the 21st, when the bare possibility of proceeding hurried them on, though they had no hopes of any refuge between that and Yamsk. They bent their course towards the sea, on which they constantly travelled within two wersts of the shore, approaching this at night for the purpose of halting. The 23d, at night, they stopped in a fine wood of firs, near the river Iser.

On the 23d they met a serjeant with dispatches from Okotsk; and soon after, at about three wersts distance, from its mouth, the river of Yamsk presented itself. In following its course they discovered on the right a habitation of fishers, used only in the summer; and going six wersts farther, about noon they entered the village, which is more than one hundred and fifty wersts from Toumané. Their biscuit being nearly consumed, they were not only constrained to sleep there, but to remain a part of the next day to recruit their provisions.

The serjeant, who commanded the garrison of twenty men, received M. de Lesséps with great civility; and, upon the recommendation of the Governor of Ingiga, hastened to prepare whatever he wanted, and gave him every necessary direction.

The ostrog or fort of Yamsk is on the border of the river bearing its name, ten wersts from its mouth, where it forms a bay that promises excellent anchorage; but several capes that project a great way, and a number of rocks or shoals, with which its entrance is almost choked, makes the navigation exceedingly dangerous, and hardly to be attempted but with a leading wind.

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wind. On which account, if the place were more considerable or more frequented, shipwrecks would probably be more common.

There were twenty-five houses at Yamsk, built of wood; and in a part of it, where the church stands, was a square of palisades, like that of Igiga, but neither so high nor so thick. They reckoned twenty families, who lived nearly in the manner of the Russians.

They had a method of making salt, with which M. de Lesseps was unacquainted. All the wood thrown up by the sea is put together with the greatest care. As soon as it is dry they burn it. The ashes are then boiled, and the sediment it deposits is a fine white salt.

A troop of wandering Tongouses had left Yamsk two days before M. de Lesseps' arrival. As a consolation for not having seen them, they showed him the full dress both of men and women. They wear no chemise, but a kind of stomacher, which fastens behind, and descends as low as the knees, like an apron. It is embordered with the hair of the reindeer, and decorated with glass beads of various colours. At the bottom are plates of iron and copper, and a great number of small bells. Under this apron they have breeches, or pantaloons of skin; and instead of stockings, their legs are covered with long boots of reindeer-skin, embroidered with the hair on the outside. A long waistcoat covers the shoulders, and, at the end of the sleeves, gloves are fastened, which are open under the wrist, to admit of pulling on. This waistcoat, close on the breast and fitted to the shape, reaches to the middle of the thighs, and is also ornamented with embroidery and glass beads. From the fall of the back hangs a tail two feet long, but not thick, made of the hair of the sea-wolf coloured. The head dress consists of a little round bonnet, lengthened at the sides to cover the ears.

ears. The whole dress is the skin of young rein deer, trimmed with sable, otters, or furs of equal value.

The dress of the women is nearly the same, only it has neither tail nor gloves, and their cap has an opening at the top of about two inches diameter, through which M. de Lesseps thought it probable they put their hair. In the winter they wear thick fur cloathing, but they are careful, for fear of injuring it, to change their drels the moment they enter the yourtes, and to put on their worst garments, and upon the most trifling occasions, they strip themselves quite naked.

The heat of the sun on the 24th threatened an approaching thaw; in consequence of which M. de Lesseps furnished himself with plates of whalebone to put under the skates of the sledges in case of necessity, and, by the advice of the people of the country, he determined to travel by night, and repose himself in the day-time, whilst the sun was at the height of its power. He left Yamsk at eleven o'clock at night; their caravan consisting of nine large sledges or nartas. The post expences are the same as at Kamtschatka for the common sledges, though the teams of the nartas are double in number.

By break of day they found themselves at the bottom of one of the highest mountains fifty wersts from Yamsk. The Koriacs had given it the name of Babouschka or the grandmother; and they say that on the summit is the tomb of an old forceress, as famous as she was form-dable. Arrived at the top of the Babouschka, the guides armed their feet with cramps in the form of small tripods, and placed larger sticks cross-ways at the bottom of the sledges to prevent their descending too swiftly. No other care was necessary but to guide the dogs with the oschtol or stick with the iron end, and they got to the bottom without any accident. This descent is, however, thought dangerous by the inhabitants of the country, particularly when the unequal spaces are filled up with snow, and thus become

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become unavoidable gulphs, fatal no doubt to many travellers. Misfortune or safety on this occasion may perhaps be equally attributed to the old forceres at the top of the mountain; and as such prejudices may excite fear, the Koriacs, as a means of ensuring safety, are careful to leave behind them some offering. Those who attended M. de Lesseps were eager to hang up theirs, which consisted of small pieces of tobacco, bits of fish, iron, &c. and which are left in the place where they suppose the forceres is at rest. Others before them had left old pieces of iron, of knives, the broken ends of arrows and other weapons. M. de Lesseps saw a tchouktschi javelin ornamented with ivory, which he wished to take with a view of keeping it. When one of the guides stopped him and cried out, "What are you going to do? Would you destroy us? Such a sacrilege would bring on us the greatest misfortunes; and prevent you from finishing your journey."

The first village they came to was Srednoi; whence they proceeded in the evening with fresh dogs, and the 26th, before noon, reached Siglann, which stands on the side of a river of the same name, and is the last village of the Koriac territories. It is neither larger nor more populous than Srednoi, from which it is seventy-seven wersts. That same evening they went on again, and by three o'clock the next day arrived at Ola, a Tongouze ostrog, one hundred and fourteen wersts from Siglann. It is situated on a sandy shore at the mouth of the river Ola, which, widening in this place, presents a small harbour, to the end of which the Tongouzes retire in severe weather. This retreat they had quitted a few days to take possession of ten yourts, which compose the village of Ola, where they remain during the warm season.

These yourtes are not under ground like those of the Kamtschatdales, or as the greater part of the fixed Koriacs; they are also longer and better constructed. The poles supporting the walls are thicker,

thicker, and they have a strait opening at the top of the roof from one end to the other. The fire place is in the same manner extended the length of the house. Eight feet above the fire, which is never suffered to go out the whole summer, they hang their fish and sea-wolves to be dried and smoked, which is the chief advantage of these dwellings. Two doors facing each other from the opposite ends of the buildings, give them the power of bringing in trees and large pieces of wood for the supply of the fire. Each family have their beds in separate huts at the sides of the yourte. That which M. de Lesseps entered was partitioned off with the skins of fish properly prepared, sewn together and painted of different colours, making an odd sort of tapestry that was not disagreeable.

The winter yourtes are round and raised above ground like those of summer. Large perpendicular pieces of wood form the walls; they have a sloping roof with a hole at the top for the evaporation of the smoke. There is a door at the bottom, and some have a kind of gallery in them which breaks the column of air, so that the smoke issues more freely.

Soon after M. de Lesseps' arrival at Ola, he was visited by several women; some dressed in the Russian manner, others like the Tongouses. Surprised to see them so fine, he was told it was the village feast; and that it was besides a piece of their coquetry, to appear dressed before strangers. Among the most esteemed ornaments, embroidery with glais beads seemed to have the preference, which they did with great taste. M. de Lesseps observed one on the boot of a young girl, the design of which was admirably light and elegant. It concealed nothing of the beauty of the leg, which was covered with a pantaloon of skin perfectly fitted; and over it was a kind of short petticoat.

There is a striking resemblance between the Tongouses and the Russians. They have the same features and language. The men are strong and well made.

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made. Among the women are some Asiatic figures, but they have neither the flat nor broad countenance of the Kamtschadales, or of the generality of the Koriaks. Kindness and hospitality seem to be the characteristic qualities of the Tongoussé people. It was not from a want of zeal that M. de Lesseps was not furnished among them with every thing he wanted; but their means are so circumscribed, that they could change a part only of his dogs.

Upon leaving this village they went along the sea, where the cracking of the ice, now beginning to break up, gave them many dreadful alarms. At break of day they reached the main land, in order to go over a steep promontory; in the descent of which, one of the guides who was accidentally overturned, received so severe a wound by falling on his stick which pierced his side, that they were obliged to place him on one of the baggage sledges.

At the foot of the mountain they were still more perplexed, by finding the sea already broken up. They therefore proceeded along the shore, till in about half an hour the man in front called out that he could not possibly go any farther. To find a way by land was out of the question, and the only method of crossing a bay now before them, was, as the guides advised, by leaping from one sheet of ice to another. But as the current had put the pieces of ice in motion, M. de Lesseps objected to that undertaking, and at length discovering a narrow ridge of ice that adhered to the rocks by which the sea was bounded, and exploring the way first himself, in seven hours, with immense difficulty and hazard, he got his party over with the loss only of one dog, which was indeed a serious loss to the conductors, as the price of some dogs was as high as fifty roubles a piece, and not one sold for less than five.

They now proceeded to the village of Armani, at the foot of which runs a river of the same name, eighty
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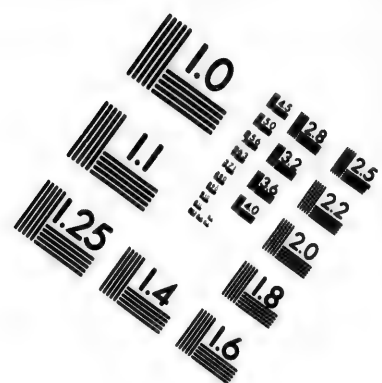
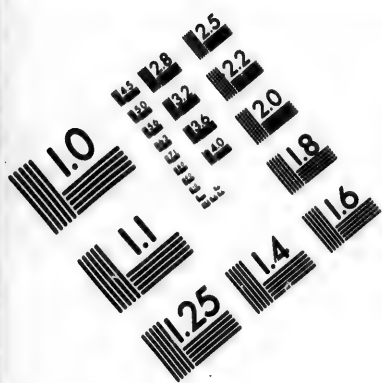
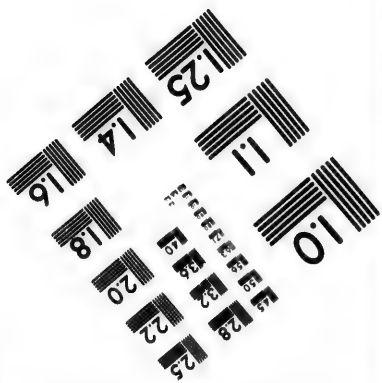
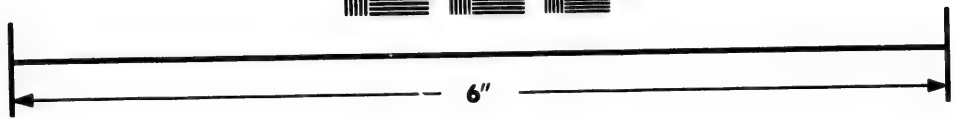
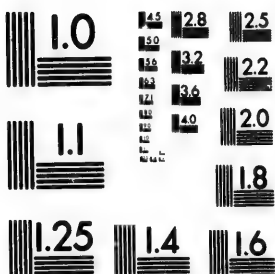


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one wersts from Ola. They passed on about 300 yards farther, and stopped at the abode of a Yakoute who had lived thirty years in the same yourte, which was placed in the midst of an extensive wood of firs, and where M. de Lesséps was told he would find a better lodging. In his absence, his wife received them with great kindness; offering them milk, and a sour beverage made of mare's milk, called koumouls. It was not disagreeable, and the Russians, notwithstanding their superstitious aversion to whatever comes from a horse, drank it with great pleasure. Meantime the husband arrived. He was a good looking old man, still full of vigour and health. As soon as he learned the object of M. de Lesséps' journey from his wife, and from the soldier Golikoff, who, being a native of Yakoutsk, served as interpreter, he made haste to prepare for his repose the best apartment his house afforded. M. de Lesséps was awakened by the lowings of a herd that came into the yourte. Eight cows, a bull, and several calves, had a part of the habitation; which in spite of such visitors was neat, and the air sweet and wholesome. The life of this Yakoute was not passed like that of the Koriacs and Kamtschadales, in catching and drying fish, which was a food he did not esteem. The care of his cattle and hunting, which were his only occupations, supplied all his wants. He had besides, ten horses. These he used for various purposes, and kept them in an enclosure at a small distance from the yourte, around which, every thing bespoke ease and happiness. It is not easy to say what charms the appearance of the herd, or the sight and good flavour of the milk diet gave to the repast, but M. de Lesséps thought he had not for a long time seen such good cheer. The master of the house had even the attention, before his departure, to put some game on the sledge that carried the provisions.

They separated the same evening of the 29th, fully
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satisfied with each other, and M. de Lefseps, travelling all night, got as far as the fort of Taoufk by the next morning, which was forty two wersts. This ostrog, where according to custom, they passed the day, is upon the river Taou. It contains twenty isbas, a small church served by the minister of Okotfk, and a building in which they deposit the tributes, surrounded by palisades in the form of ballions. Twenty Yakoutes, two of their Princes, and some Koriacs, whom the situation has attracted, make up the inhabitants. The garrison consists of fifteen soldiers, under the command of a serjeant named Okhotin, at whose dwelling M. de Lefseps rested till the evening.

In the night they passed through the village of Gorbé, which is peopled by Yakoutes, and a small number of Koriacs. At day break they lost sight of the sea, and having for some time coasted along the Taou without daring to risk the ice, they insensibly advanced farther into the country. The first and second of May, they travelled across fields and upon the river Kava, without perceiving a single habitation.

The third of May, at the instant that they were disposed to make a halt in the middle of a wood of fir trees, they were overtaken by a storm of wind and snow. A tent spread over the baggage sledges made them a shelter, but it was necessary to have a fire, and the conductors, who undertook to get wood, were buried up to their waists in snow. In the afternoon the wind shifted, and the sky was cleared. They therefore remounted their sledges, but were obliged to get out in turns to make a passage for the dogs.

The morning of the 4th they passed over the mountain of Iné, two hundred and seventy wersts from Taoufk, and which is as high as that of the Babouschka. At the summit the cold was so intense as to compel them to light a fire. In about five hours they came again to the sea, which they left some distance from

from Iké, where they arrived in the dusk of the evening.

This village is thirty wersts from the mountain which bears its name, and is peopled by Russians and Yakoutes, who live in isbas and yourtes; and have the care of a stud of more than two hundred horses, which they had noticed ten wersts from the village. M. de Lesseps intended to have changed his teams and have gone on immediately, but he was unwillingly detained by the difficulty of procuring dogs. The chief of the village was dead drunk; and it was not till after an hour's importunity and search, that a sufficient number could be assembled.

At twenty-five wersts from Thé, where, for the sake of speed, M. de Lesseps had left his equipages and attendants in the care of his faithful Golikoff, with orders to follow him as fast as possible, he passed two yourtes inhabited by Yakoutes and Tongouses, in a hamlet called Oulbé. Farther on he met several convoys of flour, which was left at the neighbouring villages to be made into biscuit for the supply of the ships belonging to M. Billings, of whom there will soon be occasion to speak.

The sea now made its appearance again, and they travelled forty-seven wersts without quitting the shore, where they saw a whale aground, and several sea wolves. At the top of the mountain of Marikann, that is to say, at the distance of twenty-five wersts, M. de Lesseps had the pleasure to discover the town of Okotsk. A gust of wind now threatened to retard him, but overcome by impatience, he continued his route, determined to brave all accidents. His courage, however, was not put to the proof. On the sea coast he found the air calm, and was able to satisfy the curiosity of examining a vessel lately wrecked. At last, after crossing the river Okhota in great fear, while the ice bent under his sledge at every step, at
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four o'clock the fifth of May, he entered Okotsk, accompanied only by Nédarezoff.

He alighted at the house of Major Koph, who was appointed to the command during the absence of M. Kasloff, whom he had expected with M. de Lesseps for some time. The governor's letter acquainted him with the cause of the separation, and he shortly related to him the melancholy circumstances attending it. He then hastened to wait on Madame Kasloff with letters entrusted to him by her husband, but she was in the country, four wersts from Okotsk. He was so fatigued that Major Koph would not allow him to go that day, but sent the letters and his apologies, by an express, with a promise of his paying his respects to her the day following. Presuming that he wanted rest more than any thing, the Major obligingly conducted him immediately to the apartment destined for him in the house of M. Kasloff. He there found comforts to which he had been a stranger from the time of his leaving Ingiga, having slept in a bed but once at Yamsk in a journey of three hundred and fifty leagues.

Among the persons who waited on him the next morning, was M. Allegetti, an Italian, and surgeon of the expedition of M. Billings. From the attention and skill of this gentleman, M. de Lesseps received great benefit for the complaint which had still continued in his breast since his imprudence in swallowing some ice, as has been related.

Since his arrival at Okotsk it had not ceased to rain, and the people sent to examine the roads, reported that it was next to impossible for him to proceed with dogs. No other hope was left for his departure, for which he was very impatient, than by taking deer: and to procure these, M. Koph dispatched a courier after some wandering Tongoufes who had left the town but a few days.

Having taken these measures, M. de Lesseps and

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M. Koph

M. Koph went to Madame Kasloff's at Boulguin. This lady was born at Okotsk, and had been well educated. She spoke French admirably; and, during the absence of her husband, lived in retirement, devoting her time to the care of a little daughter, now three years old.

The day following, which was the 8th, the courier returned without having been able to come up with the Tongoufes, who had dispersed through the country. No hope therefore remained of deer. But as M. de Lesleps was fearful of not reaching the Cross of Yudoma before the rivers were entirely broken up, in which case he might be stopped by the floods, he prevailed on M. Koph to give the necessary orders for his going on the next day, in spite of the difficulties that had been pointed out to him.

The town of Okotsk is longer than it is wide, and extends from east to west nearly in a line. On the south side is the sea, at one hundred yards from the houses, with a beach of flints between. The walls are washed on the north by the river Okhota, whose mouth is to the eastward, that is to say, at the extremity of a neck of land on which the town is built, and which widens towards the west. The interior offers nothing remarkable. The houses vary little in their construction, being merely isbas, some of which towards the east, larger and more convenient than the others, are occupied by the officers. M. Koph lived in the opposite quarter. The door of his court-yard opened into the great street, where was a square containing the house of the governor, and the chancellor's office all in one. Opposite was the guard-house, and on the left the parish church. The several edifices made no great appearance: formerly they had been shut in by a palisade, a part of which remained. A gate to the east of the government house shewed that there had been a fortress. Behind is a street close to the
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the river, inhabited by merchants, whose shops are regularly disposed on each side.

The port scarcely deserves the name. M. de Lesseps counted seven or eight small vessels or galiots, some belonging to the crown, and others to merchants trading in furs to America. It is to the eastward, near the extremity of the town, and a little distance from the river whose windings form it. Upon the invitation of Mr. Hall, a lieutenant in the navy, M. de Lesseps went to see a kind of dock-yard, where were two small vessels building for the expedition of discovery entrusted to M. Billings. The sailors, soldiers, and carpenters had been sent hither at a vast expence, and all employed the greatest ardour upon the armament, which it was presumed would cost the Empress an immense sum.

Faithful to his word, M. Koph had seen every thing prepared for M. de Lesseps' departure, who, on the evening of the 10th, quitted Okotfk. His suite had been augmented by two men, who were to pilot him on the river Yudoma. He went on all night, notwithstanding the badness of the roads, which too well answered the account he had received of them. They were full of water, and in some places, particularly in the woods, the dogs were up to their bellies. The wind was to the southward, the sky cloudy, and every thing foretold that the thaw would continue.

Meantime, having crossed the river Okhota, he gained without any accident the village of Medvéjé-golova, or the Bear's Head, forty-five wersts from Okotfk, and inhabited by Russians and Yakouts. He got there early in the morning, but the dogs were so tired, that he decided upon stopping that day and all night; not having it his power to get a fresh supply.

The following day he hoped would take him to Moundoukan, twenty wersts from the last village. Half way a part of the dogs refused to draw; and they very reluctantly went down on a river which

seemed to offer a more convenient way. They had not gone many yards before a sudden crack was heard under the sledges, and in a minute that of M. de Lesséps sunk considerably. A piece of ice still kept it up, but a second break put the skates three parts under water. It was in vain to attempt getting out, as the least motion would have overturned it. Fortunately the water was only four feet deep; and by the help of his people, who were obliged to hold each other by the hand, they all recovered the bank in safety; for deaf to the remonstrances of his conductors, M. de Lesséps was determined to pursue his route. The snow in the meantime melted so rapidly, that the dogs paddled in the water without advancing, till they fell down one on another, worn out with fatigue.

At length, by the serious though resolute arguments of one of the guides, who was a serjeant, sent particularly by M. Koph as a man of great intrepidity and experience, and who pointed out the almost innumerable and insurmountable difficulties before them, himself determining to go no farther, M. de Lesséps was prevailed upon to return immediately to Okotsk, whence he was no more than fifty-five wersts.

They reached Medvéjé-golova that same evening, and staid there till four o'clock at noon the next day. They then travelled slowly to the river Okhota, which they crossed with great danger, and arrived at Okotsk the 14th at noon.

This unavoidable misfortune, and the prospect of being detained here some weeks, were sources of great tribulation to M. de Lesséps. But he had the comfort of knowing he had done his best; and the kindnesses he received from every body diverted his chagrin, till resignation was no longer a merit.

Among the officers of the garrison he was under particular obligations to M. Loftsoff, inspector-general, who sent an order to all the environs for all the best

best horses to be ready at the shortest notice. This was no small exaction, if the extreme weakness of these poor animals were considered, who live all the winter upon the branches of fallows or birch trees, and are turned out in the spring to recruit themselves before they are used.

In a few days an express from Ingiga gave them the satisfaction of hearing that M. Kasloff had arrived in that town; but their joy was rather damped by not receiving any letter from him. M. de Lesseps pleased himself however with the hopes of seeing the Governor General before his departure from Okotsk.

Okotsk being the seat of government, and the principal mart for Russian commerce, M. de Lesseps was here at the source of knowledge, and the society in which he lived gave him the opportunity of instructing himself in these particulars. He endeavoured, therefore, to trace the causes which first gave rise to the enterprises of the Russian colonies in that country, and which were afterwards the means of fixing and increasing them. In this pursuit he had the assistance of the most enlightened persons, and the most skilful merchants: and in order to assure himself of the truth of their information, he frequently compared their accounts one with another, as well as with the assertions of Mr. Coxe. The following is the subject of the notes which he made on this occasion.

By the conquest of the eastern part of Siberia, the Russians got possession of the rich mines with which they enriched themselves, and which the inhabitants seemed to hold in but little estimation. To the extraction of iron, the conquerors added that of silver, of gold, and of other precious metals, the external objects of man's avarice. The discovery of these new sources of riches, enflamed the courage of the adventurers, till the desire of extending their dominion carried them to Irkoutsk, which, on this side, ought to have been considered as the boundary of the empire.

At their first incursions into the neighbouring countries, they perceived with regret that the same advantages were not to be expected. Nature every where shewed herself a step mother. The sterility of the soil, equalled by the rigour of the climate, the stupid slothfulness of the savage inhabitants, who for the most part were hunters, herdsmen, or persons subsisting on fish, promised no great resources to industry, and repressed the powers of speculation. But the ingenuity of avarice found here even treasures that might be appropriated. At the sight of the cloathing of these people, it was immediately determined to rob them of it; calculating upon the possibility of succeeding by the allurements of change, and upon the immense profit that would arise from such a branch of commerce, if they could once get it into their own hands.

In advancing farther to the east of Asia, it was remarked that the furs became more beautiful. This was sufficient to persuade the Russians how much it was their interest and glory to subject every part of this vast territory to their laws. Hitherto it had been the theatre of piracies by a herd of Cossacs and Tartars, with whom some Russians, animated by the same spirit of plunder, had united. The success of their attempts gaining ground, a desire of gain increased the number of emigrants, whose boldness grew in proportion to the resistance with which they were opposed by the natives. In vain had nature placed these in sandy deserts, in the midst of forests, where their independence seemed out of all reach; in vain had the rigour of their winters, their mountains, and their frozen rivers been given them for ramparts; nothing is insurmountable to ambition, to the rage of conquest, or to a thirst of riches. The courage of the natives occasioned the renewal of combats, but they could not save themselves from oppression. The victors, avowedly recruited by government, sprung up like

like hydras, till they had made themselves masters of all the country as far as Okotsk, and pushed their conquests in the north to the river Anadit.

To secure such advantages a system of government and commerce became necessary. Forts were constructed, and towns built. These establishments, miserable as they were, opened an asylum to Russian and other traders, who had found the way through these provinces. The injustice and cruelties of usurpation no doubt were severely felt till a regular mode of government took place. The rights of the natives were then more attended to, taxes were less arbitrary, and the public duties were better fulfilled. The Russian merchants sent their factors to Okotsk, which, from the advantages of its situation, became the metropolis. The navigation was however little more than cruising, and the vessels from Kamtschatka were chiefly galiots. The cargoes they brought back, that is, the precious skins taken from the inhabitants either in barter or as imposts, were sent to the center of the empire, where they were sold under the direction of government, and chiefly on its account, the immense duties laid on every article consuming nearly the whole profit.

Meantime Okotsk flourished, and the number of vessels that entered its port daily increased, as fresh connections opened fresh objects of traffic.

Russian caravans, leaving Siberia behind them, passed on from desert to desert, till they reached the frontiers of China, where, after some time, a treaty of trade was settled between the two nations. This privilege, which was not enjoyed by any people in the neighbourhood of China, gave to Russia an unbounded extent of commerce; and led besides to the discovery of islands which very soon arrested the particular attention of the Court of Petersburg.

In hopes of one day possessing these islands, the most experienced marine officers were consulted and employed.

ployed. Behring, Tchirikoff, Levacheff, and others equally celebrated. Eager for discovery, some embarked at Okotsk, others at Awatscha, or Saint Peter and Saint Paul at the point of Kamtscharka, and Behring island, Copper island, the Aleutienne and Fox islands became tributary in their turns. The happy argonauts at length reached the coast of America, and landed upon the peninsula of Alaxa, which they learned was part of a vast continent; every thing shewed that it must be the new world, and, full of joy, they returned to their own country.

Russian factories were quickly established at Alaxa, which continue to be well supported. The following is the mode of traffic adopted at Okotsk, whence several vessels sail every year for America. When a merchant wishes to make this voyage, either himself, or by an agent, he obtains permission of the governor. The cargo is divided into shares, which are bought by whoever chooses to become a purchaser. The price of the shares defrays the expence of fitting, and of the different articles of merchandise, which consist of stuffs, iron utensils, glass trinkets, handkerchiefs, brandy, tobacco, and other things esteemed by savages. The officers and sailors have a part of the cargo called *pai* assigned them instead of wages. The voyage lasts three, four, or six years, and is directed to places little frequented, and spent in search of new discoveries. Upon their return, the owners pay duties to the treasury according to the nature of the lading, which are levied upon the effects. The remainder is then valued, and equally divided among the owners. A part of the merchandise is then sent to Okotsk, and part to Yakoutsk, thence to Irkoutsk, and last of all to Kiakhta, where the Chinese become the purchasers.

All the tribunals of the peninsula, as has been observed, are subject to that at Okotsk, where the garrison, which was for a long time very disorderly, was now, by the abilities and attention of the late governors,

nors, brought under a strict discipline, that has made instances of disobedience very rare. The police, by the admirable management of M. Koph, was equally well ordered: and by the activity and prudence of M. Loftsoff, Inspector-general, the trouble that used to attend the collection of the revenue was entirely removed, and the decrees of the Empress were executed without violence.

Having mentioned M. Billings, it may be necessary to observe, that this gentleman, from the reputation he had acquired in one of the voyages of Captain Cook, who was his countryman, was invited to Russia, and received the rank of Captain, for the purpose of commanding a secret expedition, as it is supposed, of discovery. The most extensive powers are given him, and materials, workmen, sailors, every thing in short that can be necessary, has been furnished by the court. For the sake of dispatch he has divided his people. One part was at Okotsk under the command of M. Hall his lieutenant, attending to the two vessels building there; whilst he had gone with the remainder to the Frozen Ocean, in sloops and other ships hastily built in the river Kolumé. No one could guess the object of this first voyage, but it was imagined that M. Billings was to make the circuit of this part of Asia, to double Cape Suetoi, and to search for a passage to Okotsk by the sea of Kamtschatka. If so, he had probably met with insurmountable obstacles, since after being at sea some months, he had re-entered the Kolumé, and had just sailed for Yakoutsk. The armament under the care of M. Hall had been suspended during the winter, but was now getting on fast. But M. de Lesséps did not think, that with the greatest diligence, those ships could be ready in less than two years.

The river Okhota, which had always been disencumbered of its ice by the 20th of May, did not break up this year till the 26th. The floating of the
ice

ice was a grand spectacle; attended with the unfortunate loss of thirteen dogs, which no possibility could save, and which were carried away in a few minutes to the sea, where they would soon inevitably perish. These were now the only victims, but the effects were sometimes so terrible, as to occasion the removal of all the houses near the river: and M. de Lesséps was assured that a fourth part of the town had frequently been destroyed.

At the completion of the thaw, the fishing season commences, which relieves the inhabitants from the greatest distress. On M. Koph's ordering the seine to be used, a great part of the town attended. The cries of joy at sight of the fish were extraordinary, and it was not without tears that M. de Lesséps beheld whole families disputing for it, and some of them devouring it raw upon the spot.

At the earnest entreaty of M. de Lesséps, the horses that had been appointed for him, were ordered to be ready by the 6th of June; and on that day he left Okotk accompanied by M. Lottsoff, M. Hall, and M. Allegetti. Of his two soldiers, Golikoff only went with him, and the father of Nédarezoff, who was to pilot him on the river Yudoma. Some workmen were also to follow, by the permission of M. Koph, to repair what boats might be damaged, that M. de Lesséps might not be delayed.

At sight of his horse, which was a mere skeleton, he drew back with horror and compassion, though he passed for one of the best. The saddles were like those of France; except those that carried the baggage, which were of wood, with two cross sticks at the end to which the portmanteaus were fastened. For some time they travelled by the side of the Okhota, which, at the breaking up of the ice, overflows its bank to an amazing extent, and has been known to rise two feet above the tops of the highest trees. Near Medvéjé-golova M. de Lesséps' horse fell under him,
and

and finding it impossible to make him get up, he was left behind, and it was imagined would soon expire. M. de Lesseps mounted another, and gained the village without any other accident.

The next morning at nine o'clock they forded the river Okhota, the course of which they were no longer to pursue. Some Yakouse yourtes were observed here and there at a great distance from each other, on account of the number of horses kept by the inhabitants; some of them possessing more than a thousand, who could not possibly find sufficient food if the studs were nearer.

At Moundoukann the fatigue of the horses obliged them to stop that night and all the next day. Early the 8th M. de Lesseps here separated from Messrs. Hall and Loftsoff, and ascended a high mountain named Ourak, at whose summit the horses were almost buried in snow. At the foot ran a wide and rapid river of the same name. The watermen who dwelt on the bank happened to be absent, and M. de Lesseps tired of waiting for them, ordered his people to launch the best boat they could find; in this the baggage was put, and they were conducted in turn to the opposite side. The horses were fastened by their tails, three together, and guided by a person in the boat, swam across, and they pursued their journey. Twenty-five wersts from Moundoukann they were obliged to rest the horses again, and passed the night under a tent, keeping up fires for fear of the bears. At break of day they proceeded, and M. de Lesseps surprised at seeing tufts of horse-hair tied to the branches of the trees, was informed that they were offerings made by the people of the country to the gods of the woods and highways.

At five o'clock in the afternoon of the 11th they came up again with the Ourak, several branches of which they had forded the preceding day. The width here was not considerable, but the rain made it appear

pear dangerous, and experience proved it so. They therefore pitched their camp in the neighbourhood, where the horses fortunately found something to eat.

M. de Lesseps restricted himself to one meal in the evening, though he was very successful in killing game, among which he met with the heath-cock and white-partridge. The food of the Yakouts was a kind of thick frumenty made of rye and water, with an addition of fish-oil. They were said to be not great eaters, though a few of them had been known to roast a horse at a treat, and demolish him in a few hours. The intestines were thought a delicate morsel.

On the 12th M. de Lesseps was awakened early by the guides, who informed him the water had greatly sunk during the night: and whilst they were putting on the baggage, several horsemen arrived in safety from the opposite shore. They were ruined merchants going to try their fortune as factors of a man of property, whose speculation had obtained the consent of the court, and all succours that were necessary. The object was the fur trade, principally of the sable caught by the Koriacs and the Tchouktchis. The factors were to separate at the mouth of the river Pengina, and to advance into the country. The term fixed for their journey was from four to five years; and they were not only to purchase skins wherever they could, but were also themselves to hunt the animals: having nothing to fear but from the natives, against whom they were provided with arms and ammunition.

After crossing several rivers with great difficulty, and even with a very narrow escape of his life, M. de Lesseps got in good time the same day, the 12th, to Ouratskoi-plodbis hé, a village on the border of the Ourak. The inhabitants were four soldiers, each of whom occupied an isba. They had the guard of a magazine, in which were deposited the effects belonging to the crown, and that were brought from Okotsk

or

or Yakoutsk. Sometimes they convey the merchandize as far as the mouth of the Ourak; but this river is so obstructed by flats and cataracts, that the navigation is very troublesome and dangerous.

The next morning M. de Lesseps crossed the river in a boat, and halted at night near an immense lake at no great distance, which was the source of it. The lake was said to be about seven wersts in circumference, and to contain a great quantity of fish.

The Yakoutes, who are accountable for the horses, have a custom of cutting off the ears and tail of such as die or that are left on the road; which they are obliged to give to the proprietor, or pay the price of the animal: and a long dispute on this subject would have detained M. de Lesseps, if he had not promised to give them a certificate, or take the blame on himself.

The 16th the horses were so tired that they were obliged to walk and lead them, while the Yakout followed and whipped them along. In this manner they proceeded the whole day, stopping in places where the young grafs began to show itself, in order to refresh the poor beasts.

At three o'clock in the afternoon they arrived at Yudomskoi-kreit, or the Cross of Yudoma, so called from a large cross that is erected on the bank of the river. On an eminence, beyond the reach of its overflowings, are several magazines guarded by four soldiers, which serve as a refuge where their houses are flooded. These soldiers are also watermen, and are at the service of travellers.

At the sight of M. de Lesseps' passports they were immediately at his disposal. Unfortunately their boats were in as bad a state as possible, nor were there either workmen or materials to repair them. Those that were to have been sent from Okotsk could not be near joining them; and M. de Lesseps was impatient of getting down the Yudoma, Maya, and Aldaun, for
fear

fear of being exposed to the danger of the shoals and cataracts, as the waters decreased apace. Among the soldiers here, one only had made this voyage eight years before, and had totally forgot the course. M. de Lesseps was therefore advised not to have recourse to him, but on the refusal of all the others. His only resource then was in old Nédarezoff, who had been sent with him as a pilot; but who had only been once on this river twelve years ago, and the only thing he remembered was, that he was three years going from Yakoutsk to Okotsk.

Of the four boats on the beach, M. de Lesseps picked out the best and the narrowest, which was twelve feet long by six. On examination it was found absolutely necessary to caulk and pitch it, and to add a board to the front to resist the force of the waves. All this was done as well as circumstances would admit, and the boat was ready by the evening of the 17th. At the instant of setting out next morning, a caravan of merchants appeared from Yakoutsk. They were on their way to Okotsk, and M. de Lesseps pressed M. Allegretti to take advantage of their company. They parted at nine o'clock with the regret inseparable from mutual attachment.

M. de Lesseps placed two soldiers to row, but the rapidity of the current rendered the use of oars unnecessary. All their care was to avoid a famous cataract which fell from a height of twenty feet upon three enormous rocks. On this account it was thought prudent to lay to for the night, and the boat was covered with a tent. The next day, after proceeding some hours with great difficulty and caution, they went along a canal to the right of the cataract, which, when the water is high, affords a safe passage. They had still a difficult pass to make, at about a werst's distance from the cataract, and by not keeping exactly in the middle of the stream, the boat was pitched upon a rock just hidden by the water, but
which,

which, being well covered with moss, did them no injury. M. de Lefseps fired at a bear that was walking on the bank, and wounded him, though not sufficiently to prevent his flying into the woods. He saw also a number of argalies, swans, geese, and a fox, but could not get within reach of any.

After sailing on the Yudoma at the rate of from ten to fifteen wersts an hour, they entered the Maya on the 22d at two o'clock in the morning, and proceeded in a direction nearly north, but inclining now and then to the east. About noon they met nine boats drawn by men, and bound to Okotsk, laden with various military stores for M. Billings's expedition. The knats were now very troublesome, and they had no other way of keeping them off, but by the smoke of rotten wood, with which they kept a fire night and day.

In the evening of the 23d they quitted the Maya for another river larger and more rapid called the Aldaun, which they merely crossed, in order to gain a habitation on the other side opposite the mouth of the Maya.

M. de Lefseps found here some marines belonging to M. Billings's expedition, by whose advice he took advantage of some horses of burthen, lately arrived, which, on their return, might convey him as far as Amguè. He therefore paid his guides, who were to take the boat to Belskaia-pereprava; and having brought the Yakoutes who belonged to the horses into good humour by dint of promises, though they were at first much averse to conducting him; after a good night's rest, he mounted his horse and continued his journey.

Neither the voice nor the music of these Yakoutes, who were very fond of singing, could be called agreeable. They were besides great improvisatoris, or extempore singers, but by no means it appears equally ingenious with some of the muleteers in Spain or Portugal. Every thing they saw furnished them with a
subject,

subject, and the flight of a bird lasted them an hour. But it was seldom beyond a short sentence; such as "the bird is just gone by."

On the 26th they arrived in the evening on the border of the river Amga, two hundred wersts from the harbour at the mouth of the Maya. It was too deep to admit of fording, and the boats were all on the other side. After calling therefore some time, one of the guides, out of patience, stript himself, and swam across to fetch a boat. The whole party got over in an hour, and proceeded to the habitation of a Yakoute Prince, named Girkoff. Golikoff went on before to endeavour to procure a favourable reception. The Prince showed them great civility, not only offering M. de Lesséps his yourte, but treated him with milk and butter, and promised that his best horses should be at his service the next day. In one corner of the yourte, which was one of the best they had seen, there was a trough of leather fixed for the reception of mare's milk, which every person who entered, and the women in particular, stirred with a stick: and it is in this manner that the koumouifs or sour beverage is made. This Prince spoke the Russian language tolerably well: and from him M. de Lesséps learned that at the beginning of summer they quit their habitations, and go with their families and a small number of horses, to gather a stock of provisions for the winter season. In May they have a festival to celebrate the return of spring, when they assemble in the open country, roast oxen and horses, and with the help of fermented koumouifs, eat and drink abundantly, sing and dance, and finish with an exhibition of necromancy: the forcerers being more at liberty, and more highly esteemed than at Kamtschatka. But their delight in fables drawn from mythology was particularly singular.

Their funerals are attended with a pomp proportionate to the rank and wealth of the deceased. When
a Prince

a Prince is buried, he is clothed in his richest habits and most splendid arms. The body placed in a coffin, is carried by the family to the tomb. The favourite horse of the Prince, and the next best of the stud, both richly caparisoned, are led by a servant, or by some near relation, on either side of the corpse. They are then tied to two posts near the grave, and whilst the body is interred, their throats are cut over it as a sanguinary libation to their departed master; whom they are supposed to follow in the next world, and again contribute to his amusement. They then are flayed, and the head and skins taken off together are hung up horizontally on the branches of the trees, at a small distance from the tomb, for a memorial. A fire is then kindled, and the last proof of friendship for the deceased, is the roasting and eating upon the spot his two favourite horses. This ceremony concluded, every body retires. The same customs are observed for women, only instead of a horse, a chosen cow is immolated.

Polygamy is allowed by these people. Obligated to make frequent journies, they have wives in every place they stop at, but they are never brought together. They are, notwithstanding this, jealous to excess, and sworn enemies to any one who should dare to violate the rights of hospitality.

By the care of Prince Girkoff, M de Lessps found nine horses ready for him the next morning. With these he departed at an early hour, and at a few paces, observed on the road wooden figures of a large bird of the duck or cormorant kind, said to be the representation of a malicious divinity, who was the terror of the whole country. Among other things he is accused of leading travellers out of the road, and devouring their horses.

In the evening he stopt at the habitation of another Yakoute Prince, whom he found as civil and agreeable as the former. These yourtes, like those of the

wandering Koriacs, are round, spacious, and sustained by poles, covered with the bark of the beech tree, formed into pieces eighteen inches wide, and edged with a kind of ribband also made of the same bark, and shaped into festoons. The inside of the yourte is ornamented in the same manner.

The 28th he came to the river Sola, and the next morning reached a place called Yarmangui, two hundred wersta from Amgui, on the borders of the Lena. He here crossed in a boat to Yakoutsk, and waited on M. Maclofsky, the governor, by whose invitation he had the pleasure of supping with M. Billings.

Yakoutsk was the pleasantest and most populous town M. de Lefseps had yet seen. It is built on the western side of the Lena. The houses are of wood, large and commodious; the churches are mostly of stone. The vessels trading here are merely barks used for transporting the provisions sent by government, such as salt and flour. The Yakouts only come to the town when business calls them. The inhabitants are principally Russians, who seem to enjoy the pleasures of life with great sociability. The mode of government is similar to that of Okotsk.

After recruiting his provisions, M. de Lefseps left Yakoutsk at one o'clock in the morning of the 5th July; and having been provided with a boat by M. Billings, proceeded up the Lena in his way to Irkoutsk. On the 14th, he arrived at Olekma, which is a badly built village, situated at the mouth of a river of the same name, between seven and eight hundred wersta from Yakoutsk. Here he stopped two hours only; and at some little distance was joined by a canoe with one man in it, who was a Tongouse trader, and belonged to one of the different hordes of his countrymen inhabiting the banks of the river. M. de Lefseps went ashore with this man, and was treated with great civility by the people in general. A young deer was slain and laid at his feet, with expressions of much regret

regret that their poverty would not enable them to make him a more useful present. He observed that the chief ornament of every yourte was a small idol of wood, having a human figure, with a monstrous head. It was dressed in their own cloaths, decorated with a number of rings, bells, and pieces of metal. They called him St. Nicholas, in allusion to the patron saint of the Russians.

The navigation became less disagreeable when he had got to Peledoui, a large village peopled by Russians, descended from the first cultivators of Siberia, called Starogili. He now got free from the dangerous exiles who had hitherto conducted the boat, and whose place was supplied by honest peasants, who were equally assiduous and obliging. In each of these villages six men were charged with the business of the post, from which no privilege can exempt them.

The next place he came to was Vitim, and four hundred wersts from Peledoui he passed a small town called Kirinsk, or Kiringui, at the bottom of which the Lena flows, and farther on the Kiringa. From Kiringui he proceeded to Usting, where was a considerable salt-pit, and beyond it three zavodes, or copper foundries.

At Toutoura, which is three hundred and seventy wersts from Irkoutsk, he took horses; and passing through the large village of Verkhalensk, arrived the 5th August, at two o'clock in the afternoon, at Katschouga, where travellers are provided with kibitks, or Russian carriages on four wheels, which are conducted by exiles, and from time to time by Bratskis, who are a colony of shepherds, supposed to be descended from the Tartars, and who inhabit an uncultivated district between Katschouga and Irkoutsk. The appearance of these people is fierce and savage. They are great thieves, and M. de Lefseps saw one of them taken up for stealing cattle. Their herds, which are numerous, consisted of oxen, cows, horses and princi-

pally sheep. The rapidity with which he travelled prevented him from seeing their habitations, or making himself acquainted with their habits of life. After passing several mountains, through horrible roads, about eleven o'clock at night on the 6th, he entered the capital of Irkoutsk. The day following Major Dolgopoloff, who was the gorodnitsch, or commandant of the place, presented him to the governor, Major General Arsenieff, to whom he gave the dispatches of M. Kasloff, in the absence of the Governor General, M. Jacobi, then at Petersburg. The obliging disposition of M. Arsenieff gave M. de Lesseps an opportunity of recommending to him the soldier Golikoff, whose father lived in the town, and who on that account was desirous of being received into the garrison, which was easily effected.

This town, the capital of the government of Irkoutsk and Kolivanic, is situated on the border of the Angara, near the mouth of the Irkout, whence it has its name. It has many edifices of stone. The churches are of brick; and some wooden houses, which are large and commodious. The population is numerous; and the great number of officers and magistrates, who have introduced the modes and customs of Petersburg, make the society very agreeable. Every person has a carriage drawn by a number of horses according to his rank and dignity. It is also the see of an archbishop, who exercises the patriarchal functions through the whole extent of this part of the Russian empire.

But it is to the commerce carried on between Russia and China that this city chiefly owes its splendour. After many fluctuations, for a full account of which M. de Lesseps refers the reader to the publications of Coxe and Pallas, the two nations, discarding all animosity, have formed a connection that becomes every day more active and interesting.

M. de Lesseps had no other preparation to make for

for his departure than purchasing a kibitk; and on the 10th he took leave of M. Arsenieff, whose son and M. Dolgopoff insisted on bearing him company the first stage, which was to the river Angava. Here he bade them adieu; and from this place his journey to Petersburg was so rapid, that it was impossible for him to continue his observations with any degree of accuracy.

He first traversed a small canton, inhabited by Bratskis, which led him to Oudinsk, and thence to Kranfnoyark, where he stopt to repair the axle-trees of his carriage. This last town derives its name from the red and steep banks of the Yenisei, which washes its walls. He now entered the desert called Barabinskoi-step, at the end of which he arrived at the town of Tomsk. The commandant here was a Frenchman, of the name of Villeneuve, with the rank of colonel, by whom M. de Lesseps was received with the cordiality of a fellow countryman.

The town of Tomsk was tolerably neat, part of it on an eminence, where the Commandant's house was situated and part declining towards the river Tom. M. de Lesseps staid here merely to set his wheels to rights.

After crossing the principal rivers of the province, such as the Oka, the Yénisei, the Tom, the Obi which the Russians call the Ob, and the Istisch twice, he reached the town of Tobolsk at the mouth of the Tobol. This capital, situated between the two rivers, would have been one of the first cities of Siberia, but for a fire which had reduced the greatest part of it to ashes. An air of consternation still reigned among the unfortunate inhabitants, who were working with ardour, in mournful silence, to repair their losses. Already the ravages began to disappear, and the foundations of some houses and shops were raised above the surface, all of stone, with which it is probable the rest of the town will be rebuilt.

In

In quitting it he crossed the Istisch a third time, in order to go to Catharineburgh or Yekaterinbourg, where he was delayed twenty-four hours, which he employed in visiting a gold mine in the neighbourhood, and the place where the copper money is coined.

To the authors already cited, M. de Lesséps refers his readers for a description of the colonies of Tcheremisses, Tschonvaschies, Votiaguis and Tartars. Remarking only of the last, that the neatness of their habitations was remarkable. These Tartars were stationary, fond of agriculture, and rich in corn and cattle. They professed the Mahometan religion.

The head dress of the Tcheremisses was rather singular. It was a piece of hollow wood eight or ten feet long, and four or five wide, which is put down close to the hair, and hanging a little over the forehead. Round it is tied a white handkerchief either painted or embroidered with the gaudiest colours, and fringed with gold or silver, according to the taste or wealth of the wearer. It is very large and hangs down behind. The other part of the dress may be compared to a robe de chambre.

A caravan of Bohemians who were met by M. de Lesséps, asked him for money and told him they were going to people and cultivate a small canton, upon the borders of the Wolga, near Saratoff.

The necessity of showing his passport to the Governor of Casan, together with the difficulty of procuring horses, detained him till day-light. The Wolga, which washes its walls, makes the situation very agreeable. The houses are mostly of wood, and the churches stone. He was told that it was the see of an archbishop.

Beyond the Wolga he passed the towns of Houzmodémiansk and Makarieff, the latter of which, reputed for its linen manufactory, is, properly speaking, a village. At the end of the next stage he was obliged

to leave his kibiuk, which had one of the wheels broken, and proceeded to Nijenei-novogorod in a post carriage.

Leaving Vladimir he came to Moscow, and thence passing by Tver, Vouischnei-volotschok, Novogorod, and Sophia, near Tfarikocelo, entered Petersburg the 22d of September in the night, having travelled six thousand wersts in forty days, of which eight had been passed in unavoidable delays.

Conformably to the instruction of Count de la Pérouse, M. de Lesséps delivered his dispatches into the hands of M. le Compte de Ségur, Minister Plenipotentiary from the Court of France to the Empress; and receiving others from him he quitted, Petersburg on the 26th, about midnight. Two days he was detained at Riga by fresh accidents to his carriage, and at Memel eight hours were taken up in engaging watermen to take him across an arm of the sea, called Courich-haff. He passed the night at Berlin, M. le Compte D'Esterno, Minister Plenipotentiary at that Court, being desirous of sending letters by him.

At length he revisited his own country, and the 17th of October, at three o'clock in the afternoon, arrived at Versailles. He alighted at the house of M. le Compte de la Luzerne, Minister and Secretary to the Marine Department, by whom he had the honour of being presented to his Majesty the same day, and as a recompence for his undertaking, was appointed Consul to Cronstadt.

FINIS.

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